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Distributor's Bargain Page

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58 cartons—50 half-depth frames, old style bottom-bars, $1.10 per 50.

20 comb-honey shipping cases for 3⅝x 5x1½ sections, glass fronts, old style, $5.00 for lot.

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20—Single-tier cases for 24 4¼ sq. by 1½ sections, 10 for $1.50

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500—No. 1 4¼x4¼x1¾ polished sections, style 2, 500 for $3.00.

12 Alexander feeders, each, 30c.

1 Miller feeder, flat, each, 30c.

250 plain wood separators, 100 for 75c.

15 plain division boards, nailed for standard frames, each, 10c.

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10 Vine St., Philadelphia, Pa.

3—489—Root's wax presses, single, $14.50 each.

20 pairs medium drill bee gloves without fingers, 40c each.

3—G4090—Storage tank, 80-gal., honey gate attached, $11.50 each.

7—215—Sets of 5 wooden letters for honey sign, nailed only, 80c each.

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2—How to Keep Bees, 75c each.

1—The Bee People, 50c each.

10—Packed rims, shallow depth, nailed and painted, $1.50 each.

10—Packed rims, full depth, nailed and painted, $2.00 each.

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A. I. Root Company of Syracuse

Midland Ave. and Tallman St.,

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1—4-frame multiple reversing extractor, 9⅝" pockets, never been used. Cost new, $80.00. Our price, $35.00. All f. o. b. Syracuse, New York.

Honey Markets

Information from Producing Areas (First half of January)

California Points: Southern California—Supplies of alfalfa honey are being rapidly decreased, and stocks of orange honey are very light. Sage and buckwheat are still in moderate supply. Very little "distress selling" reported and trading is limited as dealers are not willing to pay the prices asked by those still holding. Occasional sales reported by beekeepers, in ton lots or more, per lb., as follows: Orange, extra white mostly 6c, with occasional sales lower, but with most stocks held higher; sage, extra white, 4¼-4½c; white, 4c; extra light amber, 4c; light amber, 3½-4c; buckwheat-sage, light amber to extra light amber, 3½c; light amber buckwheat, 3½c; light amber bean, 3⅝c; Imperial Valley light amber to extra light amber alfalfa, $3.25-3.50 per case of 120 pounds. Beeswax is dull and unchanged at mostly 10c in trade, or 8c cash delivered at Los Angeles. Central California—Supplies of honey are light, but demand has also been light and the market dull. Sales reported of white star thistle, ton lots, 4⅜c; extra light amber sage, 3¾c; light amber alfalfa and mixed flowers, 2¾-3c; light amber alfalfa nominally unchanged at 3c. Light amber cotton, 3¼c per lb. offered; small pails light amber cotton and blue curl, 6½c per lb. Beeswax is unchanged at 8-10c per lb. Bee and honey thieves have been reported active recently. Northern California—Although moisture has been very deficient to date, grass, alfilaria, and mustard seedlings are now abundant. The market has been dull with little demand. Ton lot sales reported as follows: Light amber alfalfa, 3c; medium amber holly, 3c; star thistle, white, 4⅜c; light amber, 3-3¼c; amber, 2¾c; extra light amber, 3¾-4c; few higher; mixed amber, 2¾c per lb., few local sales higher. Beeswax is slow and nominally unchanged at 8-10c per lb.

Pacific Northwest: East of Cascades—Bees have had frequent flights with little loss reported except of weak colonies. Snow is exceptionally heavy in the mountains and reservoirs have a record amount of water. West of Cascades—The hard December freeze froze some of the fireweed crowns, which will reduce this year's blooming stalks as they grow on previously developed crowns. Bees that went into winter in good condition are still in excellent shape, and as the weather has been mild bees have been able to fly when rainfall did not prevent. Sales reported of fireweed in ton lots, white, 6c per lb.; light amber, 5c per lb. Honey is said to be selling fairly well.

Intermountain States—The movement of honey during the past two weeks has been rather sluggish, both locally and in carload lots. An improvement in the local demand is expected, however, within a few weeks following the holiday period. Trading of honey for provisions, wood, etc., continues to be important in much of this area. Carlot sales of sweet clover and alfalfa reported as follows, per lb., water white, 3¾-4c; 1 car, 4½c; extra white, 3¾; white, 3¼-3½c; extra light amber, 2¾-3¼c. Ton lots and less white to water white have generally moved around 4-4½c, occasional 60's, 6-6½c; small pails, 6-8c per lb.; bulk comb in small pails reported sold at 8-9c per lb.; comb in shallow frames, 7c per lb. Few sales No. 2 section comb reported at $2.00 per case. Beeswax in trade, 10-12c per lb.

Arizona.—Colonies in average condition. One carlot sale mesquite reported at $3.25 per case of 120 lbs. for light amber and $3.50 per case for white. Light amber to extra light amber alfalfa reported sold at $3.25-3.50 per case; few sales up to 3½c per lb.

Summary.—The eastern part of the country has been above normal in temperature during the past two weeks, but much of the west has been below normal. It has continued to rain

HONEY RECEIVERS

The following individuals and firms have agreed to take in honey donated to the American Honey Institute, and a check to the treasurer of Institute, for the value of the honey at the market price, less the freight: George J. Brown, Fresno, Calif.; M. H. Hunt & Son, Lansing, Mich.; Allen Latham, Norwichtown, Conn.; Bee-Kist Products, Inc., 8272 Jefferson St., Phoenix, Ariz.; A. G. Woodman Company, Grand Rapids, Mich.; Dadant & Sons, Hamilton, Ill.; James Gwin, Department of Markets, Madison, Wis.; Lothrop Nursery Company, Aberdeen, S. D.; T. W. Burleson, Waxahachie, Texas; O. S. Bare, Extension Entomologist, College of Agriculture, Lincoln, Neb.; Sioux Honey Association, Sioux City, Iowa; H. M. Krebs, Sacramento, Calif.; George C. Barton, Meriden, N. H.; Colorado Honey Producers' Association, Denver, Colo.; George L. Emerson, 3226 Alosta, Los Angeles, Calif.; Chas. S. Engle, Fargo, N. D.; Superior Honey Company, Ogden, Utah; D. J. Doll Bee Supply Co., 201 West Broadway, Minneapolis, Minn.; G. C. Matthews, 1012 25th Ave., S. E., Minneapolis, Minn.; A. I. Root Company, 290 East 6th St., St. Paul, Minn.; M. W. Cousineau, North Dakota Bee Supply Company, Moorhead, Minn.; Standard Lumber Company, Winona, Minn.; B. I. Evans, Windom, Minn.; Earl W. Rood, Mankato, Minn.; E. W. Peirce Co., Zanesville, Ohio. Above receiver nearest you is to be notified of the number of pounds you contemplate sending in before shipment is made.

Imperial Italian Queens---Bees

(A leather-colored strain)

Write for new reduced price schedule and 1933 descriptive catalog.

Have been used and favorably recommended by Mr. M. J. Deyell, Medina, Ohio.

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WALTER T. KELLEY HOUMA - - - - - LOUISIANA

throughout the southern and central states, but little snow or rain has fallen in the West except along the northern Pacific. Bees have flown frequently in the eastern and most of the plains states and in the West occasional flights have been reported from Colorado, Utah and Nevada. Consequently stores have been consumed rapidly. Bees are bringing in pollen from red maples and other sources in the southeastern states, Texas and southern California. Demand for honey was quiet during the holiday period but towards the close of these two weeks inquiries have increased and sales have been more numerous, especially local transactions. The 5 and 10 pound pails are said to be in especial demand. Exchanging honey for groceries, wood, and other articles continues to increase the distribution and consumption of honey. Supplies in many sections are already getting light, and some beekeepers are completely sold out. Price changes have been light, with the firm price tendency in California continuing. Demand for comb honey is in most sections more sluggish than for extracted.

Monthly Report of Honey Producers

Early in January we sent the following questions to honey producers: 1. What per cent of the honey produced in your locality this season has already left the hands of producers? 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted, per pound? (b) comb honey, fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No .1, per section? 5. How is honey now moving on the market in your locality. Give answer in one word as slow, fair or rapid. 6. What is the condition of the honey plants for next season in your locality as compared with the average? Give answer in per cent. 7. What is the condition of the colonies for winter in your locality compared with normal, considering the number and age of the bees and supply of stores? Give answer in per cent. The answers received are tabulated as follows:

State. Name.	Pct. sold.	Large lots. Ex.	Large lots. Comb.	To grocers. Ex.	To grocers. Comb.	Retail. Ex.	Retail. Comb.	Move-ment.	Cond. honey plants.	Cond. of colo.
Ala. (J. M. Cutts)	100			$.45	$4.50	$.55	$.25	Fair	75	60
Ala. (J. C. Dickman)	80			.35		.47½		Slow	80	80
Ark. (Jas. Johnson)	75					.75	.15	Slow	75	80
Calif. (L. L. Andrews)	95	.04¼				.57	.17	Fair	50	90
Colo. (O. E. Adcock)	25			.33		.43	.12	Slow	75	90
Colo. (J. A. Green)				.32	2.00	.45	.10	Slow	100	100
Conn. (Allen Latham)	50				4.75	.80	.27	Slow	100	125
Conn. (A. W. Yates)	50	.06	3.00	.57	4.00	.75	.25	Slow	100	100
Fla. (C. C. Cook)				.35		.47		Slow	100	100
Fla. (Harry Hewitt)	100			.50		.65		Slow	100	80
Ga. (J. J. Wilder)				.40		.50		Fair	80	75
Ind. (Jay Smith)	100			.50	2.40	.60	.15	Fair	100	75
Ind. (T. C. Johnson)	75			.50	2.50	.60	.15	Slow	100	100
Ind. (E. S. Miller)	70			.45	2.40	.60	.15	Fair	100	100
Iowa. (F. Coverdale)	95	.05				.38	.15	Slow	90	100
Kans. (J. F. Garner)	75			.40	2.70	.55	.15	Fair	90	100
La. (E. C. Davis)	75	.04		.38		.50		Fair	100	100
Me. (O. B. Griffin)	55				5.25		.27	Slow	85	90
Md. (S. G. Crocker, Jr.)				.60	4.00	.75	.25	Slow	90	100
Mich. (I. D. Bartlett)	50			.40		.50		Fair	110	100
Mich. (L. S. Griggs)	60	.04½	1.50	.30		.39	.12	Slow	100	100
Mich. (F. Markham)	75	.05		.35	2.40	.50	.15	Fair	125	100
Mich. (E. D. Townsend)	90	.05½						Fair	90	
Minn. (Francis Jager)				.35	2.40	.44½	.17	Slow	95	100
Minn. (B. L. Morehouse)	60			.40		.50	.15	Slow	85	100
Minn. (F. W. Ray)	60	.04½	2.25	.35	2.75	.45	.15	Fair	75	100
Nebr. (J. H. Wagner)	75	.04	2.00	.40	2.40	.45	.12	Slow	90	90
Nev. (G. D. Schweis)		.04½		.37½	2.00	.50	.12	Rapid	75	100
N. J. (E. G. Carr)						.75	.25	Slow		100
N. Y. (Adams & Myers)	75	.05½	2.50	.35	3.00	.50	.20	Fair	100	100
N. Y. (Geo. B. Howe)								Fair	50	100
N. Y. (F. W. Lesser)	70	.06	2.50	.40	3.00	.50	.15	Slow	90	100
N. C. (W. J Martin)	75			.60		.70		Slow	100	100
N. D. (Chas. Engle)	75	.04			2.50	.39	.12	Slow	25	90
Ohio. (R. D. Hiatt)	60	.06		.47½	3.25	.60	.18	Fair	100	100
Ohio. (J. F. Moore)	80	.05		.50	3.00	.65	.15	Slow	90	100
Okla. (Jos. Heueisen)	75			.50		.75		Slow	50	75
Okla. (C. F. Stiles)	80			.50		.65	.17	Fair	90	90
Ore. (H. A. Scullen)	50			.32½		.40		Fair		90
Pa. (H. Beaver)	20	.04½		.40	2.40	.50	.15	Fair		100
Pa. (D. C. Gilham)	35			.65	4.25	.85	.25	Slow	100	95
S. C. (E. S. Prevost)	90			.55		.67½		Slow	90	80
S. D. (L. A. Syverud)	80			.40	3.00	.50	.17	Fair	90	90
Tenn. (W. L. Walling)	90			.65		.85		Slow	100	75
Texas. (T. A. Bowden)				.35		.45		Slow	100	100
Texas. (H. B. Parks)	90	.04		.25		.35		Fair	110	95
Utah. (M. A. Gill)	90		1.75	.30	2.00	.35	.12	Fair	80	90
Vt. (Phillip Crane)	75		3.00		4.00	.75	.25	Slow		100
Va. (L. N. Gravely)	90	.10		.40	2.25	.50	.15	Fair	70	85
Wash. (W. L. Cox)	60			.33⅓		.39		Fair	100	100
Wash. (G. W. B. Saxton)	60	.05				.40		Fair	100	100
W. Va. (W. C. Griffith)	15			.25	1.95	.40	.10	Slow	100	100
Wis. (James Gwin)	80	.05½			3.50	.50	.19	Fair	75	90
Wis. (N. E. France)	80					.45	.12	Slow	50	90
Wis. (E. H. Hanselman)	50			.40	2.00	.45	.10	Slow	50	75

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with lower-priced package bees and queens. 1 2-lb. package with queen, $2.00; 10 or more, $1.75 each. Queens, 65c each; $7.50 per dozen. Write for descriptive circular and prices on larger quantities. Accredited and certified by the Alabama Department of Agriculture. Safe arrival and satisfaction guaranteed.

J. M. Cutts & Sons

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We ship only quality queens scientifically raised that must show by size and appearance they are queens of quality and worth buying.

If you want bees and queens that will give you more pleasure and satisfaction in handling, and produce the honey, try our "Golden" quality queens and bees.

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We handle only three-banded light Italian bees.

We guarantee purely mated select young queens.

Our cages are lightly constructed and are very easy to handle in the hiving process.

Each consignment is made with the Louisiana State free disease certificate.

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NUCLEI

2-fr. nuclei with queen.. 2.25
3-fr. nuclei with queen.. 3.00

Nuclei can not be expressed to Canada because of government regulation. Consignments to Cuba have been very satisfactory to our customers.

Orchard packages, 5½ lbs. 3.75

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Queens sent by Parcel Post Postpaid

Sel. queens, April 45c, May 40c
Tested queens .....65c each

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We solicit Canadian trade. We are prepared to accept from our customers in Canada their money at par.

As in the past we shall have queens available in April and May for package shippers from the South at wholesale prices.

We guarantee delivery of packages and queens in perfect condition.

LOW PRICES
LARGE APIARIES
RESPONSIBILITY

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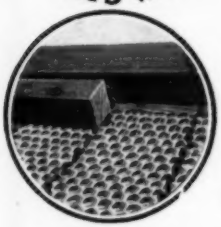
---Compare Its Strength

Each sheet made of pure beeswax, just as your bees make it. Each sheet reinforced with nine crimped steel wires with hooks at the top to hold securely in your frames. Cell bases and side walls as accurate as machinery can make them. Strength enough to make your combs last as long as combs are used. You may be proud of your combs for brood or for honey. You may be sure of them honeyflow after honeyflow. Extreme hot weather or in cold. When you melt combs from Dadant's Foundation, they yield only beeswax, and you can depend on them utterly throughout the years. Each sheet inspected and tissue packed by hand in corrugated dustproof cartons to reach you ready to use.



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The real test of combs is what they will do in the beehive. Combs like these shown here may be filled either with brood or with honey and will go through the extractor in fine condition. That is why Dadant's Improved Crimp-Wired Foundation is used in apiaries everywhere. Put a good queen and a good comb together and watch the bees pour out.

Dadant's Improved Crimp-Wired Foundation makes the small hive big and the big hive bigger.

DADANT'S FOUNDATION—The choice of expert beekeepers—**LOWEST PRICES IN THIRTY YEARS**

Dadant & Sons, Hamilton, Illinois

Makers of famous foundation, wired—plain—surplus.

Gleanings in Bee Culture
FEBRUARY, 1933

A Study in Nectar Secretion

An interesting paper entitled "Nectar Secretion of the Tuliptree or Yellow Poplar," by G. E. Marvin, Assistant Apiculturist, Bureau of Entomology, U. S. Department of Agriculture, was presented before the Apicultural section of the American Association for the Advancement of Science at its meeting in December. It describes the methods used in measuring the amount of nectar secreted daily by individual flowers of the tuliptree (*Liriodendron tulipfera*). Pieces of absorbent cotton were used with which to collect and weigh the nectar. The average production of flowers opening in the forenoon was 1.69 grams and for flowers opening in the afternoon 1.54 grams. The Abbé refractometer was used to determine the sugar content of the nectar which for this purpose was collected with small glass pipettes. The nectar from freshly opened flowers contained from 15.2 to 19.5 per cent sugar. Uncollected nectar became more concentrated the longer it remained in the flower, and on the second day it had reached a concentration as high as 36 per cent. In some cases a sugar concentration of 63 per cent was found. The tree under observation was calculated to contain 2484 blossoms. Using an average production of 1.64 grams, this tree could produce at least nine pounds of nectar daily.

The St. Louis Meeting

Elaborate arrangements are being made for the annual meeting of the American Honey Institute, the American Honey Producers' League, and the Apiary Inspectors of America, at Hotel Statler, in St. Louis, February 27, 28 and March 1. Located in the midst of the great honey-producing region of the Mississippi Valley, and with excellent transportation systems, both rail and highway, St. Louis offers many advantages as a meeting place for these beekeeping organizations.

The annual meeting of the American Honey Institute will be held on February 27. This meeting will be of extreme importance to American beekeepers on account of the critical period through which the Institute is passing. The problem of raising sufficient funds to carry on the important honey-promotion work of the Institute and the adjustment of its activities to present conditions, are of vital interest to all American beekeepers.

The program of the American Honey Producers' League, February 28 and March 1, is being arranged with great care in order to make it of the greatest possible value to those in attendance. Mr. Charles Denny, chairman of the St. Louis committee, states that arrangements are being made for a model kitchen in which to dramatize the work of the American Honey Institute's testing kitchen, in order that beekeepers may get an idea of the character of the work of the Institute and learn of the many ways in which honey can be used in the kitchen. Missouri beekeepers are planning a honey exhibit, which is to be one of the features of the meeting. A demonstration of the various uses of honey will be given in the auditorium of the Barr Department Store. This auditorium has a seating capacity of 1000.

The Apiary Inspectors of America will meet on the afternoon of Wednesday, March 1. This session will be open to all beekeepers.

Selling Honey from Door to Door

Perhaps never before in the history of this country has so much honey been sold by peddlers as is being sold in this way this winter. Under ordinary conditions, this method of selling honey is entirely too slow and laborious, but the lack of other employment and the difficulty of finding a market at any price have driven many beekeepers to this method of disposing of their crops. Not only have many beekeepers peddled their own honey from door to door, but many people in towns and cities who have lost their jobs have discovered that they can make a little money by peddling honey for some bee-

keeping friend, or they may buy it from a dealer.

In order to make sales, beekeepers in many cases have peddled honey at wholesale prices, thus helping to demoralize further the already chaotic honey market. On the other hand, this intensive method of selling is placing honey in many homes in which it would not have been used otherwise, and, by going direct to consumers, beekeepers are able to help correct the prevailing erroneous ideas about the purity of honey on the part of the general public. Thus, in spite of its disadvantages, disposing of honey by peddling may help in building a firmer foundation for the honey market, and thus help to establish honey more firmly in the regular channels of trade when business conditions improve.

Sugar Tax Blamed for Death of Bees

A news item from Berlin, Germany, states that more than 400,000 colonies of bees are doomed to die in that country because of an increased tax on sugar which raised the price of that commodity so much that beekeepers were no longer able to buy it. Such a condition will remind American beekeepers of conditions in this country during and immediately following the World War when the price of honey was far above the price of sugar. One of the best lessons American beekeepers ever learned is the great advantage in leaving an abundant supply of honey to carry the colonies not only through the winter but also through the period of extensive brood-rearing in the spring. American beekeepers certainly would like to see the price of honey at least two or three times that of sugar, but it is certainly to be hoped that, if this happy condition ever returns, beekeepers will not again be so foolish as to take most of the honey away from the bees and substitute a scant supply of sugar stores. If this news item expresses the true condition, it is probable that our co-workers in Germany will solve their problem by leaving the bees a more liberal supply of honey, and thus reap rich rewards such as have come to American beekeepers since they have become more liberal with their bees. Whether the lesson is driven home by low prices of honey as in this country, or high prices of sugar as reported in Germany, the effect should be the same. In either case it is most wholesome for the beekeeping industry.

Bees Wintering Well Thus Far

Reports indicate that the bees are in good condition in most sections of the country. The mild weather of late December and early January afforded opportunities for cleansing flights, which should enable the colonies to withstand whatever weather may occur this month and next, even in the North. Evidently bees are supplied with stores in greater abundance than usual in most regions. On account of the low prices of honey, beekeepers were inclined to be more liberal in the amount of stores left for the bees. However, in a few important commercial honey-producing regions, bees were short of stores last fall, and in many cases the deficiency was not corrected. In these regions, there will no doubt be considerable loss from starvation unless beekeepers do some winter and early-spring feeding.

This can be done in mid-winter even in the North by using friction-top pail feeders, placing them directly on the tops of the frames in contact with the cluster of bees, then placing packing material around the feeder to keep the syrup warm while the bees are taking it. By doing this during a spell of mild weather, it is not necessary to let any colonies starve. During severe weather, colonies can be fed in this way by carrying them into the cellar, leaving them a few days while they take down the honey or syrup. Beekeepers who have a supply of honey and find it necessary to feed their bees, will no doubt use honey instead of sugar this year. Before feeding, the honey should be thinned slightly by adding a pint or two of water to a gallon of honey, and heat it to destroy all crystals.

That New Brood Disease

It is fortunate that the new brood disease, parafoulbrood, first described in the September, 1931, issue of this journal, was discovered while apparently still confined to limited areas. This new disease is further described in an article by R. E. Foster and C. E. Burnside, beginning on page 86 in this issue. It is also fortunate that the limited areas in which it has been found are outside the areas in which package bees are produced. The importance of the package-bee business to those states in which this industry has grown to great magnitude in recent years, is such that

the officials will speedily exterminate the disease, if this be at all possible, and certainly prevent its spread to the package-producing areas. Otherwise, it might seriously interfere with the supply of package bees from the South, causing great loss to northern honey producers as well as southern breeders.

This illustrates the great value of the work on brood diseases which has been carried on by the Bureau of Entomology, Washington, D. C., for many years, and the system of state apiary inspection which has been set up in most of the states. If the present knowledge concerning the brood diseases, the facilities for laboratory examination of samples of diseased brood, and the present apiary inspection system had been in existence in the early days of beekeeping in this country, American foulbrood and European foulbrood would not have been scattered throughout the country, but would have been stamped out soon after making their first appearance. Now that we have all these facilities, this new brood disease should be stamped out completely if this is at all practicable.

Evidently this new disease which resembles both American foulbrood and European foulbrood in some respects, should not be difficult to control. Thus far, the indications are that better beekeeping methods will tend to overcome it. In this respect, it is quite similar to European foulbrood and entirely different from American.

Moisture Within the Hive

Condensation of moisture within the hive has long been associated with poor wintering. Wet or moldy combs have been looked upon as detrimental to the health of the bees, but whether these are the cause of poor wintering or the result is not easy to determine in many cases. Some condensation of moisture within the hive is sure to result in single-walled hives during a spell of cold weather and even in double-walled hives during a long spell of severe cold when the inner walls become chilled below the dew point. On the other hand, when the bees have gone into a state of winter quiescence undisturbed because of poor stores or other irritating factors, they give off such a small amount of moisture that it may escape through the entrance in vapor form. But when bees become active during winter because of some disturbing factor, such as the consumption of poor stores, extreme cold, or the presence of brood, they often give off so much moisture that some of it condenses on the walls of the hive, and on the lower portions of the combs.

Various methods have been devised to keep the hives dry during winter, such as pieces of old carpet or burlap over the tops of the frames with porous packing above and provision for ventilation above the packing; enlarged entrances; and even auger holes in the upper portion of the hives for the escape of moisture.

On the other hand, much evidence has accumulated indicating that the interior of the hive may become too dry for the comfort of the bees during winter. In their experimental work on wintering and studies of the behavior of bees during winter, government workers early discovered that colonies of bees can not be kept in a high degree of quiescence in an extremely dry atmosphere. In order to bring about even a reasonable degree of quiescence in such cases, it was found necessary to greatly reduce the temperature over that required in a more humid atmosphere. The bees evidently become thirsty and grow quite restless in a very dry atmosphere at temperatures which in a more humid atmosphere would result in extreme quiescence. Under these conditions, they will take large quantities of water if offered in a feeder. This tends to quiet them.

In the early days of cellar wintering, most cellars were too damp for good wintering, unless the temperature was raised considerably above ordinary cellar temperatures; but, later, when beekeepers located in the drier climate of the West, it was found that lower temperatures were necessary to keep the bees quiet. In other words, in a very dry cellar, colonies evidently become restless because of thirst. It is then impossible to bring them to the greatest degree of quiescence, and lower temperatures are necessary to keep the bees reasonably quiet and within the hives. Instead of lowering the temperature, some have reported excellent results by sprinkling the floor of the cellar, or giving water in feeders at the entrance, thus bringing about a greater degree of quiescence than is possible by lowering the temperature.

A Plucky Beekeeping Mother

E. R. Root

The Most Extensive Bee Woman in the United States

He had 700 colonies of bees. The honey flow was at its height and there were good prospects for a crop of 100,000 pounds of honey if he could get the supers on in time. He knew that time was precious. If he didn't get ahead of the bees, they would get ahead of him and he would lose part of his crop. He had loaded up his truck; he was on his way to an outyard. He had to cross a railroad track, obscured at the point of crossing by high embankments on both sides. In his eagerness to get to the yard he forgot that a fast train, at the terrific speed of sixty miles an hour, was due at that very moment. As he was about to cross he could not see the tracks either way. He rushed on, thinking only of his bees, and—crash! a terrible crash that ended the useful life of E. A. Winkler of Joliet, Illinois, and made his wife a widow in the fraction of a minute. This occurred in June, 1927.

Mrs. Winkler (seated) and her children, now her helpers.

A successful beekeeper, Mr. Winkler was known all over the United States for his exploits in getting farmers to put in sweet clover, especially the annual variety known as Hubam. He was one of the very few beemen in the country who actually transformed a poor bee range into one of the best. His crops of honey from the artificial, or man-made, bee pasturage had been large. He had built a modern house and paid for it, but he made the mistake of building another home, a veritable palance, that threw him heavily into debt. Had he lived, he no doubt would have made good.

Suddenly Faces Extremely Difficult Situation

His wife, of course, was prostrated with grief. The oldest child, a boy of 11 years, a little girl of 7, and a baby fifteen months old, constituted the family. What could she do? She had to face the problem of a very heavy debt and those 700 colonies needing supers. I had heard that she was the most extensive bee woman in the United. I had known about her husband from the series of articles he wrote for this journal about sweet clover, and I decided to call on her.

Fortunately, her late husband taught Mrs. Winkler how to handle the bees.

As she told me the story and showed me the awful spot where the tragedy that robbed her of her husband and gave her the problem of going on with the business had occurred, her voice trembled. How could she take over the job that only a man like Mr. Winkler, with his vision and tremendous energy, could handle? She said she would have given up in despair, but the eleven-year-old boy, a veritable son of his father, came up to her, and said, "Mother, I'll help you. We can do it." She looked at her older girl and then at the baby, and then said, "Yes, son, we can and must do it." But it was a task that would have discouraged most mothers. She tried to collect from the railroad company but as usual, the amount secured was very small.

The bees were needing attention. Foulbrood had broken loose among them. But having imbibed the irrespressible spirit of her late husband, she conquered it by the old reliable plan of shaking, putting the bees in clean hives and on frames of foundation. Then to make it doubly sure, she put all the treated colonies into a hospital yard for observation. She says there has seldom been a comeback.

Harvests 96,000 Pounds of Honey With Hand Extractor

Fortunately, she and her son had been out with the father and had learned some of the tricks of the trade. With that experience both of them tackled the problem with a will to win out. Well, that

Mrs. Vera Winkler, probably the most extensive woman beekeeper in this country.

year, 1927, they harvested 96,000 pounds of honey. The father had the 700 colonies in prime condition and all that was needed at the time was to give them plenty of room by the addition of supers. This was done, of course. Then came the problem of how to get the honey off the hives, how to extract it and put it on the market.

Mrs. Winkler had heard about the new radial extractors. She wanted to get one. She had heard about uncapping machines.

One of the Winkler apiaries as it appeared at the time of the first extracting, July 6, 1932.

The Winkler Spanish home. The apiary was located here temporarily.

She wanted one of those, but she decided she would take the old equipment, a two-frame extractor and a hand uncapping knife and go at the job. With the help of her son and the hired man, she actually extracted and put on the market 96,000 pounds of honey the year her husband died, 1927. With the proceeds of the sale she paid over half of the debt. She moved out of the big house into the old one, rented the new one, and at the time I was in Joliet, she was feeling hopeful for the future.

Unfortunately, the seasons have not been as good as that of 1927. It was impossible for her and her son to do all the work. Some colonies, owing to the inefficiency of the help, died out, and the result was that the total number of colonies was reduced down to a little over 500. A series of dry seasons, the great depression that has hit everyone, lowering prices on honey, have made her struggle a hard one, of course. Fortunately, her son, now going into manhood, is apparently a "chip off the old block." He has had some very hard experience, but experience that will enable him to pay off the debt.

I have seen some very fine testimonials of Mrs. Winkler's honey and especially one testimonial for comb honey. Apparently she is a good saleswoman as well as a good beekeeper.

Medina, Ohio.

Setting for Great Experiment in Beekeeping

Dr. E. F. Phillips

The Land, Its Resources, and the People of the Soviet Union

To grasp the magnitude of the social experiment in the Soviet Union, it is necessary to appreciate the fact that it occupies about one-sixth of the land area of the earth, a total of over eight million square miles, or about two and one-half times the area of the continental United States. The share of the world's tillable land stated in communist literature varies in their different publications, their claims usually lying between one-third and one-fifth of all tillable land. The accuracy of these claims will, of course, depend on how much of the area within the territory of the Union can ultimately be brought under the plow to advantage, but the area now actually cultivated is doubtless quite a little less than that of the United States. Before the Revolution their cultivated area was appreciably less

than ours, but meanwhile efforts have been made to subdue more former untilled regions, and an exact estimate now seems impossible. One can not accept claims on such subjects from the communists, who in their optimism are prone to overstate statistics.

Giant Country Straddles Two Continents

The Soviet Union extends from the Baltic Sea on the west to the Asiatic coast of the Pacific Ocean and from the Arctic Ocean to the hot wastes of Turkestan. The southermost latitude is, however, still well to the north, for their most southern areas are about on the latitude of southern Virginia. Most of the country, barring a southern projection, is north of the latitude of Ithaca, New York. The Soviet Union constitutes the largest continental domain of the world, being surpassed in total area only by the British Empire.

Map showing distribution of European wheat crop. Although the Soviet Union exceeds other countries in acreage, the countries in western Europe produce larger crops. Each dot represents 100,000 bushels.

Extending thus through two continents, there is a mixed culture among its population of about 160,000,000 people. This population is a decrease of about twenty millions from that of the former Russian Empire at the beginning of the war, due to the fact that during the World War the Russian losses appproximated eleven million; many more millions were killed in the internal strife incident to the formation and establishment of the present government, and many others either fled the country to escape the communistic despotism or were destroyed because of their failure to co-operate with the new government. In these ways the cream of the population was lost.

Furthermore Finland, Russian Poland and other newly formed countries were cut off from the territory formerly ruled by the czars, thus reducing the population. The famine of 1921 caused terrific loss of life, the total deaths being a matter only for guessing, and the loss would have been vastly more appalling had not the American Red Cross rendered invaluable service to the people of the stricken land. The elimination of people due to these events were in considerable part the best of the former population, a selection which on the whole was not favorable to the hereditary stock of the country.

Many Nationalities and Languages Included

The land being in large part agricultural, and industries not being well developed under the rule of the czars, the

Map showing distribution of cattle in Europe. The smaller number in European Russia may be attributed to lack of rainfall. Map made in 1917, before Revolution. Each dot represents 5000.

people are chiefly rural. In 1930 about 81 per cent were rural residents, although many were not engaged in agriculture as we commonly understand it. Within this vast horde of people are included about 180 nationalities, speaking about 150 languages and using eight different kinds of alphabets to write their languages. These nationalities are of European and Asiatic extraction, variously pure or mixed, so that the problems of social and political life are by no means simple. The present annual population increase is said to be about three million, and while there is doubtless a considerable annual increase, the accuracy of such guesses is not to be too strongly claimed. Statistics emanating from the Soviet Union are sometimes accurate, sometimes mere guesses and quite often distorted for purposes of propaganda, so that in these stories of the beekeeping of that country, the accuracy of any data quoted are by no means guar-

A well whiskered Russian beekeeper.

anteed, and sometimes are not believed by the present author.

The Soviet Union touches on the Gulf of Finland near Leningrad (formerly St. Petersburg). The sea ports of the Asiatic coast are frozen much of the year, so that their ocean outlet on that side is not effective. They also touch the land-tied Caspian and Black Seas. The Soviet Union is thus a land-locked, continental country, and this fact is the most outstanding bar to world progress. That they desire an outlet to the sea is obvious, and that they will try some day to get one is equally clear. The lack of close proximity to the ocean is the groundwork for the explanation of their climatic conditions, for they are too far east in Europe to be greatly affected by the Gulf Stream which makes western Europe habitable.

European Russia is a vast plain, divided by climatic and other environmental factors into various natural divisions. The more northern part of the country is an Arctic land of tundra and scrub trees and bushes and habitable only for people accustomed to a desperately unfavorable climate. It is, of course, not useful for agricultural pursuits. South of this lies the largest forest area still existing in the world, which the communists claim contains 2.3 million square miles, equal to the area of the United States west of the Mississippi River. This area is not densely populated but the recent efforts of the communists to develop their lumber industry has brought about some increase in population, mostly people who have not gone there of their own accord. To the south of the timbered area is the great Black Earth region with a soil rich in humus and effective in holding moisture, the best agricultural region of the Union and one of the world's important granaries. Still southward are the steppes (prairies), where again much grain is grown. South of the steppes are the Caucasus Mountains, a rugged area of great beauty, almost unknown to the outside world, in which agriculture is scarcely developed. Still south of these majestic mountains lie the automonous republics of Georgia and Armenia, also parts of the Soviet Union. The southernmost tip of the country lies at about 35 degrees of latitude, on a level with Cape Hatteras.

On the east, European Russia is bounded by the Ural Mountains, but all the land formations of their western territory extend beyond the Urals to the Pacific

A northern Russian village. The women are washing clothes in a stream in the road. Photo from American Russian Institute.

Ocean, this constituting chiefly the vast sweep of Siberia. To the minds of most Americans, Siberia is a snowy waste to which political prisoners were sent by the agents of the czars, and an area unfit for human habitation. This description fits the more northern portion of the country, much of which can never support much population, but to the south lies better country, except where desert conditions occur. There is some good agricultural land in what was formerly Siberia and even in the deserts it is proposed to install irrigation along the lines found feasible in the western United States, from which one day vast crops may come. The beekeeping plans about which more will be said later include the installation of apiaries in connection with these irrigation projects. It is quite proper to picture the major portion of the Soviet Union as consisting of regions which can never support much population, and the Arctic lands form a large portion of the country where beekeeping and other forms of agriculture can not be established. Riches in the form of furs already are shipped from these areas, and some of the mineral wealth of the country, of which such exaggerated reports have been issued, partially lie in this land under the perpetual rule of King Winter.

The outstanding characteristic of the area of the Soviet Union is its vast plain, not much intersected by hills and mountains. There is some monotony about travel through the Soviet Union for this reason, for one can not strain his imagination by wondering what is on the other side of the hill. There are few hills thus to stimulate one.

A primitive Ukrainian beehive with holy icon on it to insure success of the beekeeping enterprise.

The western boundary of the Soviet Union forms roughly the beginning of truly continental conditions in Europe, although parts of Poland are also continental. The climate of Russia is strictly continental, as contrasted with the more maritime influences encountered in western Europe. Isothermal lines run almost north and south, so that the climate of European Russia does not vary from

Group of Russian peasant women and children. Photo from American Russian Institute.

north to south as much as one might surmise.

Severe Climatic Conditions

Winters are severe and long, and rivers are frozen for six months of the year over a major part of the Union (average January temperature in Siberia, —22° F.). Summers are hot and short, much like those of our middle west in essential details. The short growing season is, just as with short growing seasons elsewhere, a period of great activity for plant growth, unless drouths interfere. There have been many drouths (maximum average annual rainfall about 24 inches) which in former times resulted in dire famines in parts of the country, but perhaps under more modern conditions of transportation, famines can be averted by moving crops from place to place, which was difficult under the old order.

So vast an area naturally supports honeybees, and for untold centuries bees have been kept there. The severity of the winters constitute a northern barrier to the development of beekeeping, and the census data of 1929 show that few colonies are kept north (or east) of the line which marks the boundary back of which rivers and streams are frozen six months or more of each year. There is enough land where this does not occur still to leave abundant room for bees.

Beekeeping as Related to the Church

Under former rule, beekeeping was important, not only for the honey produced but also for beeswax, since the Orthodox Russian Church used only pure beeswax candles in its ceremonies. Now that the church is no longer so prominent in the lives of the people and is to be eliminated through the antagonism of the government to it, beeswax is not in such demand for that purpose. The proposed increase in the number of colonies to be discussed later will call for the use of all the beeswax which can be produced in the country for some years to come. With a background of this kind, it is possible to increase beekeeping faster than might otherwise be possible, for there are a considerable number of persons skilled in apiary management.

Kipling said that a Russian is a delightful person until he tucks in his shirt. A friend whom I met in Germany said that a Russian is a fine chap until he gets a gun. Another friend told me that the Russians are fine but undependable. These glittering generalities all perhaps have some foundation for the average, but there are no averages in human kind. Generalities about people are dangerous.

It must be remembered that there are many nations living under Soviet rule, and all manner of national characteristics might be assumed. A Great Russian

The Church of St. Basil, just outside the Kremlin wall, Moscow. Now used as a museum to oppose religions.

differs from a Tartar, and a Tartar differs from a Georgian. The people whom we met were of many races. Scattered throughout the population of the Union are to be found many Jews, formerly bitterly persecuted but now among the leaders of the new order.

For the people of the Soviet Union there are certain general characters which may be applied, for which there are, of course, many exceptions. All those whom we met were fine companions. The Russians talk incessantly to everybody whom they meet; they talk too much, but they do it in the best natured way imaginable. They are not prompt at keeping engagements, and a delay of a few hours in meeting one does not worry them, nor are they much worried if they fail to get there at all. They rarely apply themselves as industriously to a job as does a typical American, but they get along. Their work is not so effective as ours, which fact they know, admit and regret, and their guiding motto is that they must learn to equal and surpass capitalistic America. They

are perhaps inclined to be visionary, as their form of government might suggest, but some of them make their dreams come true. On the whole I have never met people more considerate of their guests, more anxious to make them happy and comfortable or more eager to please. That is a high tribute.

Lower Standards of Cleanliness

It would appear to an American traveling in the Soviet Union that cleanliness is not considered a virtue. If cleanliness is next to Godliness, as we sometimes say, in discarding Godliness (as the communists have done) they appear to have likewise discarded cleanliness. But the lack of cleanliness occurred before Godliness was frowned upon, so the figure of speech fails. The lack of sanitary conveniences is apt to get on the nerves of an American, but since there is nothing to be done about it, one may as well go dirty and forget it if he can.

Even our good friends sometimes struck us as gullible, that is, they are inclined to believe what they want to believe. Of course, we have plenty of good people here who are likewise afflicted with this mental characteristic. They seem to accept statistics and data, when it is evident on the face of the figures themselves that they are not accurate. They believe what is in print perhaps more than we do, although we have greater occasion to doubt the printed page than have the Russians, for there is no advertising in the Soviet Union. They tend to believe each other, when sometimes it is evident that somebody is untruthful. All these are good natured folks, but they may stand in the way of progress.

The good folks of the Soviet Union appear not to care much for privacy, in the home or elsewhere, a condition of affairs which strikes us as strange. It is not so much that they disapprove of home influences that the home is not a strong factor in their lives, but rather that they prefer to be where there are a lot of other people, so that they can all talk all the time. The lack of privacy is said to extend even to mixed bathing without bathing suits, but this is merely a rumor which we can not substantiate.

Under present conditions, thrift is lacking, and nobody saves money. It is a severe jolt to one reared under capitalistic conditions to learn this fact and to see it demonstrated. But children are cared for by the state, they will receive care in old age, they are all working for the government and the government is responsible for their care, so why save? Instead of hoarding money, they use it to attend the opera, the movies or for other forms of entertainment, after their bodily needs are supplied. It is a happy-go-lucky sort of existence, more like that of the grasshopper than of the ant.

Ithaca, New York.

The Square of the Revolution, Moscow, with the State Opera House in the background.

Distinguishing Between Different Races

Dr. G. K. Goetze

Scientists Discover Many Important Differences Other Than Color Among Races of Bees

The question of the best bee is as old as bee culture itself. Now it has become most important, as beekeepers have learned that race and heredity are two factors which essentially influence efficency. All breeding for efficiency can have sure and constant success only when it is a question of race breeding. That does not mean that there is only one race which gives the best results. But when we have a well-bred stock of the highest standard, we wish to know that it belongs to a certain race, and that it is not a hybrid which would split in further breeding, as we know from Gregor Mendel.

Distinguishing Different Races by Color

For this reason it is important to be able to distinguish the different bee races. The most simple characteristics are color and hair. The common distinction of yellows, blacks and grays is not always sufficient to denote a definite geograpical origin. Even Italians are not always as yellow in Italy as they are in America (three-banded). And the bees of Germany, Austria, and the neighboring states vary very much in color in adjoining localities. That is not the influence of hybridization, but is to be found also in untouched native apiaries.

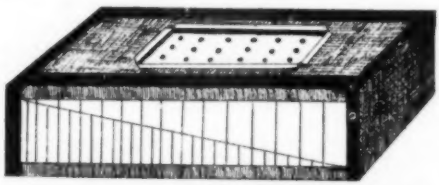
Nevertheless, breeders of pure races strive after uniformity in color and hair. They set up, so to speak, a standard that guarantees pure breeding. Three-banded Italians are the best known standard race. They can scarcely be confused with another race.

It is much more difficult to find as serviceable characteristics for the black and gray races. The specialist can easily recognize great differences in appearance and behavior among the bees of North Germany, Carniolans, Caucasians, and other "blacks." That is not sufficient for an exact distinction. Much biometrical work has been done to find out the finest differences in bee races by means of statistics of variability.

Distinguishing Between Races by Measuring Length of Tongue

In these researches tongue length has played an important part. The shortest tongues are found in the North, the longest in the South, especially in the Caucasus. The length varies from about 5.8 millimeters to 7.5, which can not be ascertained without special instruments. The practical man is not able to make microscopical researches. Nevertheless long tongues are of economic importance.

In many European countries—and I think it will be the same in America—the humblebees are not sufficient to fertilize the red clover. For this work honeybees are needed. But as the nectar is hidden in a blossom tube, which has a length of 8 to 11 mm., we must have long-tongued bees. The bees of North Germany have tongues of 5½ mm. only, and are not able to reach the honey of red clover.



Glossometer of celluloid. In the upper part there is inserted a thin perforated copper plate which can be removed. The point of intersection of the diagonal line and the level of the syrup gives the measurement of the tongue-length.

Measuring the anatomical tongue length being too difficult for an apiarist, we have a simple means of ascertaining the greatest depth which the tongues of all the bees in a hive can reach. For this purpose numerous instruments for testing tongue length (glossometers) have been constructed. Such a glossometer was bought in 1883 by Frank Benton from the German queen breeder, W. Wankler, and brought to America. Even today this apparatus is still the model for several new instruments.

It also suggested the glossometer represented in the picture here. But this new instrument shows many improvements. It

is transparent, and after you have put it into the hive, you may at once read how much sirup or honey has been sucked up by the bees. Wankler's glossometer must be weighed before and after sucking to determine the distance the bees were able to reach. In the new glossometer, the lower level of the sirup surface shows on the scale the greatest depth which the tongues have reached, and therefore indicates immediately the tongue length of the bees. The measurement can be read exactly to ¼ millimeter, and is therefore sufficient to distinguish with safety bee races with long tongues from those with shorter tongues.

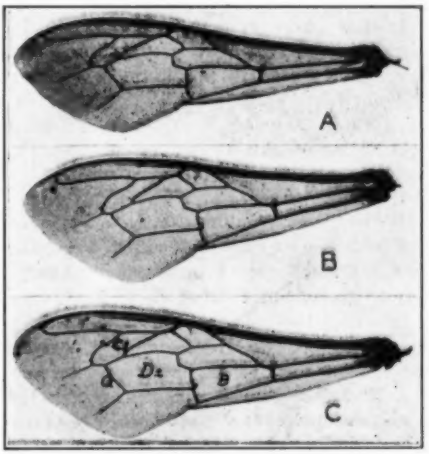
However, these measurements require a long time. In the apiary we wish to have an immediate judgment as to the external appearance of the bees. In our exhibitions we judge the general shape by points. But we did not give attention to the characteristics of the individual worker bees. Only the qualities of the queen were carefully examined. In worker bees we perhaps noted the stinging tendencies. But if we wish to have pure breeding of bees, as we have it in other branches of animal breeding, with official recognition and registration, we must above all learn to distinguish races.

Venation of Wings a Means of Distinguishing Between Races

For many years I have been endeavoring to search out such characteristics as will allow us, without complicated instruments, to ascertain in the apiary itself the membership of a bee race, and especially to distinguish the different races of blacks and grays, which can not be done by help of color.

Such characteristics have been found in the veins of the wings. The photographs of the forewing of a North German bee, a Carniolan, and a Caucasian bee show the differences quite distinctly. It is easy to distinguish the North German from the Carniolan. The cell, C3 (third submarginal cell) has quite another form which is very variable. In the North German bee, the vein which forms the base of the submarginal cell, is divided into two nearly equal parts by another vein, Q, running in from below. In the Carniolan race the part of the vein towards the end of the wing is much smaller than the interior part of the vein. This means of distinction never fails. I have called the ratio to each other of the two parts described the wing-index or cubital index. The North German bee has a narrow, the Carniolan has a wide wing-index.

We find many more difficulties in distinguishing the Caucasian bee from the two others. For a long time this was a wearisome thing in our classification of bee races, as the gray Carniolans are very similar to the gray Caucasians and even to the northern blacks which sometimes



Fore-wings of (a) North German bee, (b) Carniolan bee, and (c) Caucasian bee. The reader will notice the different shape of the cell C3 (submarginal cell). In the photograph C (Caucasian bee) D2 and B are broader and more crowded. The differences can be more exactly noted if the photographs are traced on thin papers which are subsequently held up in pairs to the light.

have also a long and thick covering of hair. Here we can not use the wing-index, as this fluctuates considerably, and sometimes approaches the Carniolan and sometimes the northern type. But the Caucasian bee always has extremely broad wings and, after some practice one will easily recognize it by the broader and more crowded form of the cells D2 (second discoidal cell) and B (brachial cell.)

The characteristics described can be easily observed without the use of instruments, or one may use a simple lens which enlarges the object five to eight times. These characteristics have no direct bearing on the production of honey, but they are a good means of recognizing pure stocks in breeding. By this it may be ascertained whether the designation of the race by the queen breeder is well founded and trustworthy.

Landsberg Warthe, Germany.

Parafoulbrood

R. E. Foster
Apiary Inspector, Florida State Plant Board, and
C. E. Burnside
Assistant Apiculturist, Bureau of Entomology, U. S. Department of Agriculture[1]

Observations on This Newly-Discovered Brood Disease of Honeybees

In the early summer of 1930, C. H. Herndon, Haylow, Ga., discovered in some of his apiaries in southern Georgia and northern Florida brood dead and dying which showed symptoms different than those of the known brood diseases. Samples of the dead brood examined by the junior author at the Bee Culture Laboratory at Washington, D. C., showed the presence of bacteria which were different from those encountered in American or European foulbrood.

In July, 1930, the senior author, upon the request of Mr. Herndon, inspected an infected apiary of 27 colonies near Jasper, Fla. One colony was found infected with European foulbrood, while the remaining 26 were badly affected and showed symptoms resembling the symptoms of European foulbrood. As an emergency measure Mr. Herndon was advised to institute the usual methods for treating European foulbrood. The requeened colonies apparently recovered, but the trouble returned during the following spring.

Later in the season the senior author and Mr. Herndon inspected a number of apiaries in southern Georgia, where the trouble was again found. At this time symptoms, some of which resembled those of American foulbrood and others those of European foulbrood, were observed. The larvae which died in the coiled stage closely resembled those dead of European foulbrood, while the extended larvae and pupae had symptoms resembling those of American foulbrood. Some of the brood remains were dark brown and showed ropiness resembling that in American foulbrood. It was also observed that the bees easily removed the remains of the younger larvae. The ropy remains were usually not removed until after they had dried down to scales which resembled scales of American foulbrood. Although the disorder resembled American foulbrood, many of the colonies were observed to recover, but others were killed outright. Also, whole apiaries that were affected in the spring appeared to have recovered completely later in the season.

In October, 1930, Mr. Herndon, accompanied by the senior author, made a survey of Clinch and Echols Counties in Georgia, and Hamilton and Suwannee Counties in Florida. Several beekeepers were found who had formerly owned from 25 to 100 colonies, most of which had died, leaving only a few colonies in an apiary. In some apiaries all the colonies had died. It was suspected that the same brood disorder was responsible for these losses.

During the spring of 1931 the condition reappeared in apiaries where it had been found in 1930. It was also found at this time in other apiaries in the same counties. By this time the inspectors and beekeepers in both Florida and Georgia were considerably alarmed by the serious damage which was being done and requested an investigation. In January, 1932, Jas. I. Hambleton, Senior Apiculturist, Bureau of Entomology, U. S. Department of Agriculture, in company with the senior author and A. B. Hamlin, Georgia State Apiary Inspector, and several beekeepers, inspected a number of the infected apiaries in Echols County, Georgia, and Hamilton County, Florida. Observations made on infected colonies at that time, in addition to evidence already obtained by laboratory examination of the dead brood, indicated that an undescribed brood disorder existed and that a careful study would be necessary to ascertain the cause of the trouble.

[1]The authors wish to express their appreciation of the assistance given them in the prosecution of this work by Jas. I. Hambleton, Senior Apiculturist, in charge of the Division of Bee Culture, Bureau of Entomology, U. S. Department of Agriculture; M. S. Yeomans, State Entomologist of Georgia; A. B. Hamlin, Georgia State Apiary Inspector; members of the staff of the State Plant Board of Florida, and C. H. Herndon and S. E. McClendon.

Laboratory Established to Study Disease

Early in March, 1932, in co-operation with the states of Florida and Georgia, the U. S. Department of Agriculture established a temporary laboratory at Thomasville, Ga., with the junior author in charge. The necessary bees, beekeeping equipment, and laboratory apparatus were furnished by the three co-operating agencies. In searching for infected colonies with which to conduct the experiments it was found that the disease had not yet appeared this spring in Georgia. Infected colonies were found in Suwannee County, Fla., where brood rearing had been in progress for a longer time. Later in the season this disease was found in Clinch and Echols Counties, Georgia, and Hamilton County, Florida. In June, the disease was identified in samples of brood sent to the Bee Culture Laboratory from Orangeburg County, South Carolina, and Wayne County, North Carolina. In November, 1930, it was reported from Pierce County, Georgia. A systematic survey to determine the range of this disease has not been made.

Organism Isolated and Named

Three of the infected colonies were purchased from beekeepers in Suwannee County, Florida, and these, together with samples of brood remains from other infected colonies in the same county, were taken to Thomasville with the permission of the State Apiary Inspector of Georgia. Cultures prepared with brood remains from these samples as well as with brood remains from the three infected colonies in practically every instance yielded a spore-bearing bacterium which appeared identical with the bacterium isolated from the samples that Mr. Herndon sent to the Bee Culture Laboratory in 1930. Since the time available for the study of the disorder was limited, plans were made for preliminary investigations with the hope that something could be learned about the bacterium responsible for the trouble, how the disorder spreads, and possible control measures.

Only the most important observations which are of interest to beekeepers are being reported at this time. A complete description of the experiments as well as the life history and the morphological and cultural characteristics of the bacterium will be published later.

The names suggested by the junior writer for this new brood disease and the bacterium found accompanying it are parafoulbrood and *Bacillus para-alvei*, respectively. These names have already been announced in this and other American bee journals. The name *para-alvei* was suggested for the organism because of its close resemblance to *Bacillus alvei*, the bacterium which is undoubtedly responsible for European foulbrood. Recent work by Lockhead[2] and unpublished work at the Bee Culture Laboratory have demonstrated that *"Bacillus pluton"* heretofore considered the primary cause of European foulbrood, is a stage in the life history of *Bacillus alvei*. The spore and rod stages of *Bacillus para-alvei* resemble stages of *Bacillus alvei*, but can readily be distinguished from them. There occurs also another form in this disease which resembles *"Bacillus pluton."*

Appearance of Dead Larvae and Pupae

Italians, common blacks, Caucasians, and hybrid bees in the brood stage are susceptible to parafoulbrood, although Italians and perhaps Caucasians appear to be less affected than common blacks and hybrids. Worker brood is affected to about the same degree as drone brood. Queen larvae are nearly always badly affected. Brood of any sex usually dies during the larval stage but occasionally worker brood was found dead in the pupal stage. At first the sick larvae appear perfectly normal but as the disease develops the larvae become restless and assume abnormal positions. (Fig. 1.) Just before death the glistening pearly-white color characteristic of healthy larvae usually changes to a dull or grayish white. The remains of the youngest larvae are coiled on the bottom of the cells but most of the remains are irregularly or spirally twisted. A considerable number die in the late larval and early prepupal stages. Although relatively few pupae are killed, dead pupae are occasionally found which have already assumed considerable pupal color, and on rare occasions dried-down pupal remains are found with tongues protruding or adhering to the top of the cells. These pupal remains resemble closely those encountered in American foulbrood. Adult bees are not affected.

Some of the dead larvae change color rapidly while others may retain a dull

[2]1929. Lochhead, A. G. Studies on the etiology of European foulbrood of bees. Transactions Fourth International Congress of Entomology, Ithaca, 1928, p. [1005]-1009, illus.

white or buff color for several days or even dry down to light-colored scales. Other larvae change from dull or grayish white to buff, light brown, reddish brown, or dark brown. As many as 20 per cent of the larvae die in sealed cells and practically all of these finally become dark colored. Tracheal markings are present in many of the larval remains.

Color changes are less noticeable in pupae than in larvae. At the time of death the larvae lose their plumpness or turgidity and become soft and flaccid. The skin remains tough for several days, enabling the larvae with some care to be removed entire. Recently-dead larvae are watery but soon become pasty. Some become ropy while others dry down to scales without showing this characteristic. Ropiness is occasionally present in larvae before the marked color change has taken place, but later these ropy remains assume the characteristic brown color. Practically all the remains in sealed cells become brown and ropy, while only part of those in open cells assume these characteristics. At times this ropy condition and the color closely resemble those encountered in American foulbrood, with the exception that the reddish tint is usually more pronounced in parafoulbrood.

There is no characteristic odor in recently dead brood and most of the larvae in open cells reach the scale stage without developing an odor. Practically all the larvae which decay in sealed cells and some even in open cells develop an intense putrid odor. This odor resembles that of European foulbrood but in many cases is much more intense. The odor differences between the scales of European foulbrood and those of parafoulbrood are not pronounced. However, in diagnosis in the apiary, the odor of parafoulbrood is a valuable symptom.

Cappings over recently-dead brood appear normal, whereas those over brood remains more advanced in decay are frequently darkened, sunken and perforated. Cappings may or may not be perforated and occasionally, instead of uncapping the cells and removing the brood remains, the bees increase the thickness of the cappings. These thickened cappings are usually greatly sunken and some are sharply depressed in the center. Such cappings, which are dark and greasy in appearance, have frequently been observed late in the season after the colonies have apparently recovered. Sunken cappings have also been observed early in the spring before the start of brood rearing. At first

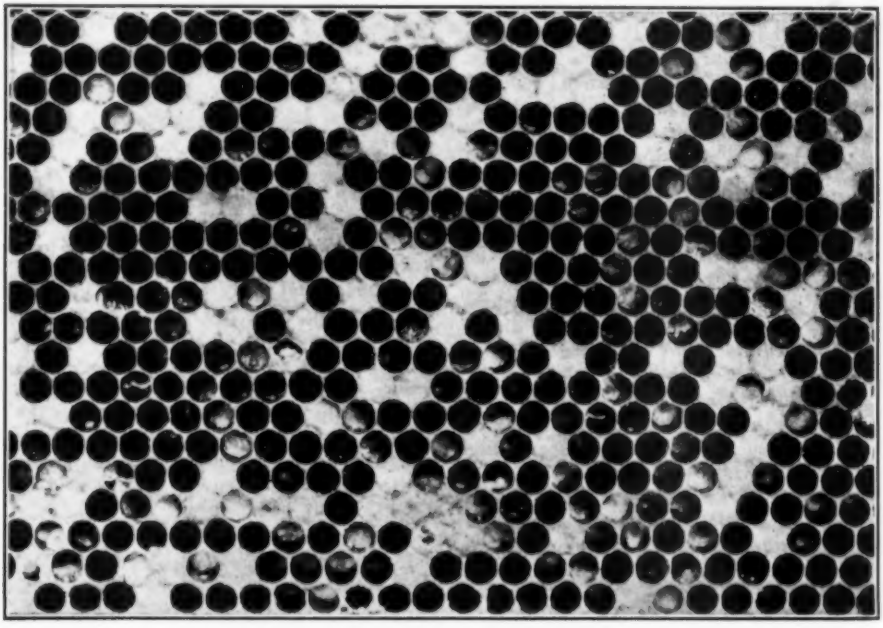


Fig. 1.—An advanced case of parafoulbrood.

there is little noticeable change in the regularity of the brood, but in advanced cases the usual pepper-box appearance is present.

Erratic Spread in Colonies and Apiaries

In some cases the disease spreads rapidly within a colony. In others the progress of the disease is slow. The same is true in apiaries. Some apiaries may have only a few infected colonies, while in others every colony in the apiary will be diseased. Some colonies apparently clean out the brood as fast as it dies, while in others it is allowed to accumulate. The brood-remains in open cells are the first to be removed. The remains in sealed cells, being protected by the cappings, usually become ropy; consequently these are not removed until later. Dried scales do not adhere tightly to the cell walls; as a result the bees are able to remove them. No reason can be assigned at this time for the apparent differences in the degree of infection encountered in different colonies. It was readily noticed, however, in the course of the work that some colonies continued to harbor the disease without apparent serious damage, others were weakened to such an extent that no surplus was produced, while still others were killed outright.

The disease was readily transmitted in experiments conducted at the Thomasville laboratory, and observations made on infected colonies in Florida and Georgia indicate that parafoulbrood is more infectious under proper conditions for transmission than American or European foulbrood. Robbing appears to be a prolific means of spreading infection and every precaution should be taken to prevent robbing in infected apiaries. Exchanging of brood, honey, or equipment in infected apiaries causes the spread of this disease and should be avoided. It is suspected that drifting is also a means of spreading this disease. This is indicated by the fact that the disease spreads soonest to colonies nearest to a badly infected one.

Owing to the number of points of similarity to European foulbrood, strong colonies of Italian bees and periods of queenlessness are being experimented with in the hope of finding a method of control. Furthermore, observations made in infected apiaries and results obtained thus far in experimental work on control seem to indicate that Italian bees and perhaps Caucasians are more resistant to parafoulbrood than are common blacks and hybrids. Because of the seeming similarity between this disease and European foulbrood and the preliminary results obtained in these experiments, it is recommended as an emergency measure that owners of infected colonies practice the usual methods for the control of European foulbrood.

Summary

Parafoulbrood, a new disease of the brood of bees, has been found in Florida, Georgia, South Carolina, and North Carolina. The organism which is constantly present has been isolated and given the name *Bacillus para-alvei*, because of its similarity to *Bacillus alvei*. Some of the symptoms of this disease resemble those encountered in American foulbrood and others, those found in European foulbrood. Parafoulbrood is extremely infectious, apparently being readily transmitted by robbing, by drifting, and by the exchange of brood or honey from infected colonies. Methods used in the control of European foulbrood are recommended for the time being for the control of parafoulbrood.

Under the Ramada

Chauncey Alvin Brion

Some Peculiarities of Beekeeping in the Desert Region of the Southwest

During more than half the year on the Arizona desert, shade is almost as essential to an apiary as the bees. Truly, it is indispensible. Without it, the bees could not be kept in their uncomfortably overheated hives, for they would swarm out and fly away to a cool, shady cleft or ledge in a rough, rocky cliff or the hollow heart of an old, scarred sahuaro cactus; and the delicate combs would melt like a

cake of ice in the sunshine.

The merciless desert sun shines with terrific, torturing rays during the height of a summer day; and every living creature seeks a shaded retreat. Even the industrious and fearless bees keep to their hives through midday, flying out only in the morning and evening to bring in the necessary water to cool their hives and the little nectar which the evaporating rays of the sun have left.

Construction and Arrangement of Sheds

The hardy chaparral trees sometimes grow in proper formation to shade an apiary, but not always; so the shade is usually furnished by an elongated artificial structure, locally known as a "ramada." In order that the bees may receive as much shade as possible, the ra-

Hives located in shade of a palo verde tree to protect bees from the hot summer sun.

mada extends east and west, and beneath it, the hives are placed in two long rows with a passageway between them.

The ramada may be covered with lath or arrow weeds or almost any kind of available brush. It should not be solidly covered as a dense shade handicaps the beekeeper in his manipulation of his bees. Enough light should shine through, so that he can easily see the eggs and young larvae in the brood combs.

Even though trees are available for shade, the ramada is worth its cost to the apiarist for the convenience and comfort which it gives him. In the long-shaded passage between the hives, he can perform his manipulations without obstructing the regular flight of the bees, and, consequently, he receives but few stings. When there is nectar in the flowers he can put his veil away; his smoker and a little nerve will suffice as protection.

Usually rude and rustic in appearance, the ramada is the most typical thing about a southwestern desert apiary. It distinguishes the apiary as the native trees and bushes with the blue mountains in the incalculable distance distinguish the desert.

Many of the more tender desert plants seek protection from the sun and grow only in some sheltered place, as beneath the branches of the trees. In the spring, especially if the ramada is several years old, a border of annual plants will grow in the shade at the front of the hives. These add coolness to the apiary in appearance, if not in fact.

Small lizards run here and there under the ramada. Now and then one of them stops and begins digging in the ground from which it procures a bug of one of the numerous varieties.

Bees Adapted to Wide Range of Environment

From one side of the world to the other bees are bees. They differ in color and temper, and in other ways; yet they are very much alike. Their nature can not and does not change with different localities, though varying climates may alter their actions. It matters not whether the hive stands under a murmuring pine tree, a desert ramada or a thorny mesquite tree, the bees that live in it will sting and swarm, and gather nectar and pollen.

However, bees are not the only factor in beekeeping, or in the economy and destiny of a colony. There are two other very important ones, climate and the flowers. It is these which give beekeeping the distinction of having so many systems, more I believe than any other culture or business. This is right and natural. Bee culture needs a great variety of systems. It extends into many climates and is supported by a vast number of flowers. The hot dry climate of the desert requires methods that are adapted to it, as every other climate does.

To be successful a beekeeper must know his bees, but he must know his flowers too. After all, the bees only work for him; and the flowers are their dependence, and his. Without flowers or something to take their place there could be no bees. Without bees there soon would be very

few nectar producing flowers; and without both there would be no honey.

The flowers bring the honey flow. The honey flow determines the handling of the apiary; and so the desert flowers are partly responsible for the things that happen under the ramada; and they with the climate give the desert apiary the peculiar stamp of the desert.

Broodless Period in Midsummer

Among the bees on the desert the usual spring work is done in the winter. The summer work is done in the spring. In the summer there is nothing to do unless the bees are moved to the alfalfa and cotton fields, for with the beginning of summer, the annual plants wither and die and the trees soon assume a dormant state. There are fewer flowers then than in midwinter. Within the hives brood-rearing ceases, and the bees just wait for the season to change. The exposure of a comb of honey at this time may change a peaceful apiary to a whirling mass of fighting bees, as they proceed to steal that which they can not gather.

Autumn is another active season. Indeed, the season seems more like spring than autumn. Blossoms appear again, the bees carry pollen and nectar, and presently the brood combs are again filled with rapidly growing larvae. Sometimes the bees build up so fast that swarming occurs.

Dangers Lurk About the Hives

Everyone, and especially those who know the least about it, will agree that beekeeping is an exciting occupation. Bees are both excitable and exciting insects, but in the desert apiary there are other things more exciting than honeybees.

Typical ramada (bee shed). The picture was taken in winter when the sun was in the south and therefore, could shine under the shed.

Picture a beekeeper walking along in the shade of the ramada. Suddenly he dashes away or yells or curses, according to his individual temperament and inclinations. A score of yellow jackets from a huge nest nearly a foot square in the covering of the ramada have attacked at the back of his neck. When a honeybee stings once, she is through, but the yellow jacket is a repeater and a high powered one, too. The covering of the ramada, if of brush, is a favored place for their nests.

Imagine an apiarist taking a frame from a vacant hive. He jerks his hand back as if he had touched a live wire. Certainly, there was no live wire there, only frame wires; but he received a shock just the same, the sting of a scorpion.

Again, picture a beekeeper walking beneath the ramada. Very likely, the end of

An apiary in an Arizona desert with mountains in the background.

a day is drawing close. The sun has disappeared behind the mountains in the West; the low-hanging feathery clouds are tinted with red and gold; and the mountains in the east momentarily are transformed and gloriously colored in harmony with the clouds by the reflected light of the invisible sun. A rabbit hops into the apiary inclosure to nibble the tender plants which the cattle can not reach. A flock of quail goes by, the birds calling and twittering on their way to their roost in the top of a thorny bush.

A vibrating rattle rings out with a startling suddenness, and the beekeeper jumps back with astonishing quickness. The rattle is the frightful, unmistakable warning of a side-winder, the quickest and most vicious rattlesnake that ever crawled on the ground. The beehives provide a convenient lair for the rattlesnakes; and, for his own safety, the beekeeper must see that all openings leading under the hives are closed, or afford himself with other protection.

Under the ramada is a good place to be careful.

Chandler, Arizona.

Some Sources of Propolis

Erwin C. Alfonsus

Methods of Gathering and Conditions Under Which This Work Is Done

Hot and dry weather usually decreases the amount of incoming nectar or stops the honey flow entirely. Bees, however, do not idle but eagerly carry on the collection of other useful substances, such as pollen and propolis. A pollen-congested brood-chamber and pollen in extracting combs above the excluder were often found during the past two dry seasons.

Beekeepers as well as apiary inspectors must also have noticed the greater effort necessary to remove combs from brood-chambers or supers after a season with a slow honey flow. This condition was caused by the deposit of propolis in all available spaces within the hive.

Different Types of Propolis

Here at Madison, Wisconsin, a rainless period of two weeks, accompanied by intense summer heat, reduced the honey flow to a minimum. However, pollen and propolis were collected freely. Numerous bees were observed returning to their hives with the pollen baskets loaded with shiny drops of propolis. Four types of material were observed: (a) water-clear, transparent droplets which on close examination show finely divided lines of faint but iridescent colors at the surface, comparable to the effect of a film of oil spread over the surface of a body of water; (b) clear dark red drops, especially brilliant in appearance; (c) lemon-yellow, clear, shiny drops, at a distance easily mistaken for pollen; (d) greenish-gray, opaque drops which seemed to be the rarest among the four types.

Under large magnification it can be seen that the transparent and semi-transparent propolis drops are completely interspersed by minute air bubbles. Drops of propolis ground up between the fingers soften quickly and produce a resinous odor. In case of the water-clear droplets, the odor reminds one instantly of the aromatic air in a pine forest or the fragrance noticed in a room where a Christmas tree has been placed.

By field observations the white drops have been identified as a pine tree exudation while the red drops originate on poplars. The yellow and green, however, remain of unknown origin. The illustrations show a white (Fig. 1) and a red (Fig. 2) drop of propolis, each attached to a removed hind leg of a worker bee.

Method of Loading in Pollen Baskets

Bees collecting propolis from pine and poplar have been observed this season on a few occasions. The bees obtained their material from drops of resin appearing on the bark of the tree on both trunks and branches. A bee alights close to such a drop and with the mandibles it tears loose a piece of it which, on account of its stickiness, strings out, forming a thread that finally separates from the original drop. Such threads are removed from the mandibles with the claws of the second pair of legs then brought backwards and

deposited in the pollen baskets. With the inner surface of the metatarsi of the second pair of legs the thread of resin is now pushed into the right position and molded to the shape of a heap of pollen. This operation is repeated several times until a comparatively large drop of propolis adheres to each pollen basket. After each tearing loose and the deposition of a thread of propolis a worker bee takes off for a short flight, returning to its original place after a few seconds and continues loading up.

Help Needed in Unloading Propolis

On returning to the hive a bee never disposes of the propolis by itself. Hive bees tear the drops loose with their mandibles in the same manner as the field bee tore the threads from the bark in the fields. It appears to be a hard piece of work and an enormous strain for both the

Fig. 1.—Propolis drop on hind leg of bee collected from pine.

collector and the bees doing the removing work. These bees take a firm hold with their legs on the supporting surface while their mandibles are buried in the propolis. They pull with such effort that the collector often fails to hold on and is pulled away from its position.

Quite frequently propolis collectors do not enter the hive but they are freed of their burden outside on the alighting board. During this removal process it often happens that little pieces or entire heaps of propolis accidentally are dropped and stick to various places on the hive. The bees, however, don't seem to take the effort of removing them. This accounts for the many droplets of colored transparent propolis which appear in many places in a bee hive which don't seem to serve any particular purpose. The hive bees after obtaining the propolis carry it with their mandibles to the place where it is needed and apply it there by using their mandibles. The tongue is not used for either collection or application of propolis.

Can Be Handled Only When Warm

Temperature seems to play an important part in the process of collecting propolis. High temperatures always soften waxy and resinous substances, making

Fig. 2.—Propolis drop on hind leg of bee collected from poplar.

them more plastic and naturally more easily gathered and handled. This may partly account for the large amount of propolis brought in last season. Propolis collectors are not observed in the early morning hours. They appear first around 10 A. M. and as time advances and temperature rises, their number increases steadily. Toward evening less and less loads of propolis come in.

Sometimes in the evening bees can be observed on which the propolis removal could not be successfully finished. On such bees one or both hind legs bear a stick-like projection, consisting of propolis which hardened while being removed. Such bees were marked to find out the fate of these propolis sticks. Bees marked on such occasions did not join the field forces the next morning, but remained inactive on the alighting board, sunning themselves. Later in the day around noon, they appeared free from their stick-like appendages and flew back to their work. This appears as if the sunshine helped to re-soften the hardened propolis to make its removal possible.

Madison, Wisconsin.

From the Field of Experience

DIFFICULT COMB-HONEY MARKET

Veteran Western Producer Decides to Change to Extracted Honey Next Season

I have been asked to write on the production of comb honey. As most readers know, I belong to the "old school" having been a young imitator in the class with such men as Root, Newman, Doolittle, Dadant, Hutchinson, and many others, all of whom have gone on with the exception of Dadant and myself. And all honor to these men for having placed American bee culture on a safe and rational basis for the modern progressives to build upon. I tried to keep step with their vision as it was held up before us hungry young followers by those masters.

My first experience in beekeeping was in southwestern Wisconsin, 58 years ago. At that time there was but very little white clover and no alsike clover in that region, but the basswood forests were in their virgin state. The white honey flow was too short to produce comb honey successfully, so I turned my attention to extracted honey. May I mention here that colonies gathered as much as 32 pounds of basswood honey in one day.

Since coming west to Colorado in 1895, and to Utah in 1911, I have been located where the whole season's honey flow was nearly all white honey. This is a feature the comb-honey producer should observe, as we have no buckwheat out here and our markets don't take kindly to amber comb honey.

I don't wish to start a controversy as to the size of hives, but I will say that after having hives of different sizes side by side for 40 years, I agree with Father Langstroth that the eight-frame size for comb honey is the happy medium. First, I can equip 1000 colonies of bees in eight-frame hives for $1000 less money than any larger hive. For me the bees swarm no more, are easier to handle, produce as much honey as my neighbor's bees in large hives, and finish a much larger per cent of each 1000 sections than do colonies in large hives; and the finished honey is what we sell.

Lucky is the man who can produce his crop with a nearby market. My son with a boy to help for five months, produced 18 tons of comb honey from the 450 colonies run for comb honey last season. Most of this honey was produced 800 miles from the market and had to be trucked that distance as railroad rates are prohibitive with the low price for honey.

The markets are overloaded with comb honey. There was more produced this year than last because last year better prices were obtained for comb than for extracted honey. And as comb honey is a luxury, the low buying power of the country will result in quite a large carry-over of comb honey. This means that the new crop will find more or less old, granulated comb honey ahead of it on the markets, and there is nothing that disgusts the dealer or the consumer more than granulated comb honey. The market must become bare, and the demand urgent before prices can be raised to a paying basis for the producer.

The government advises cutting down the acreage on many crops until surpluses are consumed. I think this is advisable for us comb-honey producers, and for my part I am going to do it. The 2½-pound and 5-pound pails of extracted honey have made a great stride during the past year in making new customers, through barter and peddlers, but comb honey must keep its place as a luxury, and can not enlarge its demand through that kind of traffic. Many large buyers are loaded to the roof with comb honey and with little jobbing or retail demand.—M. A. Gill, Hyrum, Utah.

TWO-STORY LANGSTROTH HIVE

Winter Packing at Sides Placed Within the Hive Bodies

In his article, "A Study of the World's Beehives," in the December issue, Dr. E. F. Phillips states the advantages of Langstroth dimension over other sizes of hives. By using Langstroth full-depth instead of shallow food-chambers, I utilize some space, as well as save a little on packing cases.

I remove two frames from each chamber, place a division-board next to the re-

maining eight frames, and put a cleat on the bottom-board the width of the two removed frames and the proper thickness to touch the lower division-board. When this space is filled with packing material, this makes a wall 3½ inches thick. Two colonies on one stand completes packing the sides. The ends are packed from the outside.

I always winter some colonies on 20 full-depth combs just as well packed as those on 16 frames. In the spring I can never see that they are ahead of those that winter on 16 frames in any way. Maybe I haven't the best queens yet.

It is much easier to bring colonies to full strength in spring, if wintered on 16 full-depth combs instead of 10 full-depth and 10 shallow frames. When shallow food-chambers are used, the bees may limit their activities to the shallow chamber, which has less space than eight full-depth frames.—John Labay, Carlsborg, Washington.

GLASS OBSERVATION BEEHIVE

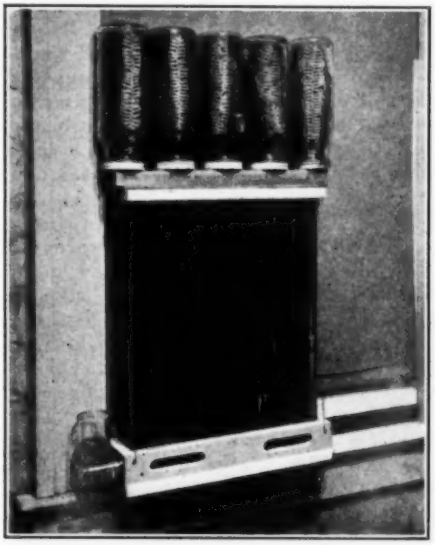
One That Can be Kept in Operation Throughout the Year

This hive can be installed on any window in a few minutes. The lower sash is raised about one inch on the bottom-board of the hive, in which the bees pass in and out through a mortise. The hive is held on the sill with two screws.

The lower section or brood-chamber has single glass walls on ends, back, and front; and is held on the base, independently from the cover, with crossed guy wires on each end. This section contains nine movable glass frames that rest on a shoulder in the base.

The frames are 16" high, 1½" across, and the sides are 1⅛". The center distance apart is 1½". The sides of the frames are parallel with the outside walls, with only three thirty seconds of an inch space between. This small space allows the warm air in the hive to circulate around the frames keeping the brood warm along the edge, but does not allow the passing of bees. The narrow width of the frames force the queen to lay along the edge, as her laying space is limited. This permits good observation of her laying and developments that take place in the brood cells after they are capped.

The base of the hive is made of wood and has two ventilators on the interior side, and a feeder on one end. The upper chamber, or super consists of five screw-top fruit jars inserted in the covers, which are soldered on the base of the super. A small piece of foundation put in each jar induces the bees to work more readily in turn.



Glass hive in which bees store honey directly into glass jars.

The base of the super is made of tin with a ventilator in each end, and excluding zinc in the bottom. This is securely held on the hive with a hook on each end, and can be easily detached from the lower chamber. A piece of card board should be placed on the back of the hive to protect it from the sun or daylight.

This hive has been in operation two years with the same queen, and has wintered well. About fifteen pounds of honey has been removed from the super each year. An entrance guard is used during the swarming season to prevent the loss of the queen.—C. H. Doten, Ferndale, Michigan.

SHORT METHOD OF TRANSFERRING

One That Can be Used in Several Other Manipulations

At several occasions Mr. E. G. Carr, New Jersey's bee inspector, has shown a

neat but hardly-known method of transferring bees.

He places the hive to which the bees are to be transferred back of the hive from which they are to be moved in such a manner that the entrance touches the upper rear end of the old hive. This forms a bridge from the old hive to the new for the bees to be moved. He uses a hive-body or an old box to raise the entrance of the new hive to the top of the old. A few puffs of smoke at the entrance of the occupied hive will start the bees and a continued drumming with the open hands on the side will start the bees on their march to their new home with the queen in the rear guard. All this movement is performed very quietly and in less than five minutes.

This transferring may be used for several purposes: (1) Artificial swarming, foundation to be used in the new hive; (2) increase by division. Just stop in time when nearly half of the bees are transferred, place the queenright hive on the new place and requeen the other part; (3) requeening if it is hard to find the old queen; (4) treatment of disease. This is the most important of all. Equip the new hive with frames of foundation and one drawn comb. The latter is to be removed after the bees have deposited their loads of honey transported during the operation.

If the transferring is done right, it works like magic. Let us hope that Mr. Carr finds some more short cuts in beekeeping.—A. H. Sterz, Morrisville, Pa.

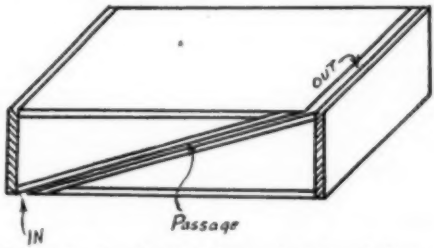
TWO QUEENS IN SAME HIVE

Device for Increasing Distance Between Two Hive-bodies to Separate Queens

Dr. Miller once said that there is no limit to the number of laying queens that can be kept in a hive as long as they are kept far enough apart. This fact has been recognized by other beekeepers. As we read the statement, it is sufficiently exact and clear until we come to the two words, "far enough." How many inches or feet does "far enough" mean, or does it depend on the season, hive, race of bees and other possible factors?

Several swarm-control methods require two queens for a few weeks previous to the honey flow, one laying queen in the hive-body next to the bottom-board and a second laying queen in another hive-body "far enough" removed from the first. One of the queens is usually required to be a young one to be left on the hive stand when the honey flow is at hand and the hive is to be reduced in size and the older queen removed.

To keep these two queens laying, the two brood-chambers are separated by a super or supers and a queen excluder. Some beekeepers advise putting on one regular depth super between the two brood-chambers, saying, "if that is not enough, put on another." This is quite indefinite. Some put on two to start with and add more if necessary. When comb honey is being produced, these extra supers will be of little further use during



Device to be placed between two brood-chambers to separate two laying queens.

the season unless a large proportion of the colonies are being used for the production of extracted honey. In the case of most comb-honey producers, the number of hives devoted to extracted honey is not such a high percentage of the total amount. Except for holding a possible small amount of honey carried in at the time, these supers are of no use other than that of creating distance for those few weeks previous to the honey flow.

It would seem that this distance (if distance is the sole requirement we must have to keep the two queens laying) could be created in a less expensive manner by providing this space through the use of a single super, yes, possibly even in a single comb-honey super. Why should it not be possible to put passages in a super so that the bees would have to traverse a long path in order to go from one super to the other? We could arrange the boards forming the passages so that they could be lifted out of the super and stored and allow the super to be used for storing the crop. And if a single passage is not enough to keep the queens laying, passages could

be arranged so that the bees would have to traverse the super twice to go from one hive-body to the other. Or we could go on building longer and longer passages until the two hive-bodies become "far enough" removed. We could go on the extreme limit until we had a miniature Grecian labyrinth.

We have not given this idea a trial as yet but expect to do so this coming season. We can not recall having seen anything about it in print and are wondering if it has been tried and with what results.—H. B. Anderson, Valley Falls, New York.

[Two inner covers could be used for this purpose, by closing the bee-escape hole in the middle and making an opening at one side or one end, then placing the two covers between the two brood-chambers so that the opening in one is at the opposite side or end (as the case may be) from the opening in the other. By placing the openings in the corners of the inner covers, the distance from one opening to the other can be further increased and by means of two or more ⅜" slats placed between the boards, the distance can be increased to several times the length of the inner covers.—Editor.]

COMMENTS ON CURRENT ITEMS

The annual meeting of the Ontario Beekeepers' Association, which was largely attended, the unusually large number of young men, many of them beginners, was much in evidence. Members of the old guard were "right on the job," too. Of course, the old boys are always with us, but why so many new faces among the youngsters? My best guess is they are waking up to the fact that, after all, beekeeping is a good financial proposition, and really a little bit better these times than other lines those boys might be fitted for.

We are learning how to cut out the frills and thus reduce our operating costs. Of course, we have less real profit than in the good old days, but we are learning how to balance the budget and to be contented with the net results we are getting. Can you show me any other line of business that can show a better record? By adopting modern methods we not only get bigger crops from the same number of colonies, but with less labor we can keep more bees. That means more honey and more honey means more money.

I read the article on pages 33 and 34 on the elimination of cross bees with interest. I think to a large extent it is possible to do this. Long experience has taught me that, in a great majority of cases, cross bees are the fault of the beekeeper. Where there are cross bees in spots in an apiary, one soon learns to handle them differently and there is no trouble.

A friend who has a mixture of strains of bees from various breeders, which are very cross, paid me a visit. We drove out to Lime Ridge Apiary No. 2. We walked into the middle of the apiary and the bees were flying freely. He removed his bee hat and said: "Tell me the secret of your success. How did you manage to get together such a large number of colonies of gentle bees?"

The question was easily answered. One strain of gentle bees bred from one of the best breeders who has not changed his strain for 32 years. Never mind about the inbreeding. If the strain is right with no weak points, there should be a steady, though slow, improvement. If any colony shows exceptional merit, breed from that queen, but, as a general rule, let them alone and save yourself a lot of trouble and work. According to our experience it is better to have all the colonies headed by a good queen from one strain. This is much more satisfactory than an apiary of many strains.

In his excellent article, "Reducing Operating Costs in Beekeeping," page 17, Mr. Pettit reports having extracted, with the aid of two men, an uncapping machine, and two 45-comb radial extractors, 5000 pounds of honey in less than 10 hours. The honey, if I understand the article, was placed in the extracting room before the men did the work of extracting which work was not counted in the 10-hour extracting day. Mr. Pettit's two extractors took twice 45 combs, 90 combs. It was no doubt a fine showing and a good day's work.

To show what can be done with an automatic four-basket slip-gear, ball-bearing, hand-power machine, no honey pump, and a common steam-heated honey knife, our manager (one of the fastest men with a honey knife I have ever seen work) and a stout 16-year-old boy started work at 8 A. M., carried into the extracting room 2500 pounds of clover honey, taking it off

the hives without bee escapes, and at 6 P. M., they had on the truck in 60-pound cans, 1700 pounds of honey. The balance was extracted the next day.—J. F. Dunn, Ridgway, Ontario.

TWO STORIES FOR COMB HONEY

Short Cut for Extracted Honey Not Applicable for Comb Honey

I had a short article in the "Field of Experience" department in the October, 1932, issue, regarding the double-brood-chamber method of managing apiaries. It appears I failed to make clear that the management outlined in the article was intended to be applied to the production of extracted honey, not comb honey. I have never tried the double-brood-chamber method for comb-honey production, but I rather think that it wouldn't work. However, I am not absolutely sure about it.

Those who have had long experience in comb-honey production tell us that, when the main honey flow starts, the single brood-chamber should be quite well filled with brood and bees, in order that work may be started in the supers immediately. Evidently the bees prefer to work in extracting supers rather than in comb-honey supers, and, unless they get started promptly to store honey in comb-honey supers, the colony may start queen cells and swarm.

In my rather limited experience in producing comb honey, I have found that when a colony has a young queen just starting to lay at about the beginning of the main honey flow, that colony does not swarm the same season. It seems to me, therefore, that it would pay all comb-honey producers to requeen in the spring during the fruit-bloom honey flow in order to have all colonies headed with young, prolific queens by the time the main honey flow starts.

When a young queen is reared from a cell in the colony she is to head and there is a period of at least 10 days during which no eggs are laid just before she begins to lay, swarming is not likely to occur during the remainder of that season. I remember one year that I introduced some young queens at the beginning of the main honey flow without allowing this 10-day period. It didn't work so well. Most of the colonies refused to accept the new queens, raised cells and swarmed. But, if young queens can be introduced and start laying when the main honey flow starts after the 10-day period of no-egg laying, the swarming problem is solved for the season, and especially if the queens are reared from cells built in the same colony.—Jack Deyell, Medina, Ohio.

THE GUNTER WAX TANK

A Homemade Outfit That Should Pay for Itself Within a Short Time

I have read many articles of interest to beekeeping but never read or seen very much about wax tanks. I have rendered tons of wax with them and would not do without one. Here is a description of a tank of my own design that every beekeeper should have who has ten or more stands of bees. I have never been docked for one pound of dirt in tons of wax that I have rendered. This tank can be used with steam or over an open fire by placing it on stone or bricks.

Any one handy at all can make this tank. All the parts can be purchased from a tinner or mail order house and they need not cost more than $4.00 to $5.00. The tank is 18" wide, 30" long and 40" deep, and is made of galvanized sheet steel of a fairly heavy gauge—the heavier the longer it will last. From 20 to 24 gauge works nicely. Two sheets, 30"x96", will be plenty. About 20 running feet of 2"x4" lumber or one-inch angle iron to form a rim at the top and the center will make it more rigid as the pressure caused by the water when the tank is full may crack the solder in the seams. A common bench screw from 12" to 18" long and ¾" in diameter fitted into a wooden crosspiece held by bands fastened in the top rim will hold the bags under water. About 8 feet of ½" pipe and one valve of the same size is used with steam heating. Five or six racks made of some scrap lumber just a trifle smaller than the inside measurements of the tank, one to go in the bottom and one between each bag of wax in the tank, will keep the hot water circulating all around the bags of wax.

If you are rendering old combs, cut them out of the frames, make a pile of the combs on the floor and with a shovel, by a down motion on the pile, cut them

into small pieces. Scoop them into common 100-pound burlap sugar bags or something similar, and when a bag is full tie securely, lay it on the floor, and step on it to make it pancake shaped. This makes it possible to get more bags into the tank.

If you are going to use steam to do the heating, have the eight-foot pipe bent in L shape to go down in one corner of the tank, then across to the opposite corner. Along the portion of the pipe that is in the bottom of the tank, cut some slots with a hack saw every eight inches or so to let out the steam all along the bottom. With the pipe in place, put one rack on top of the pipe, then a bag of old combs, then another rack and so on till the tank is filled.

Putting the combs and cappings in bags holds the dirt and cocoons and keeps the wax under the hot water where it will melt and come to the top of the water. When the tank is full of bags, fill about

Wax-rendering tank complete with overflow and drainage pipe extending from lower corner.

half full of water. If steam heat is used it will raise the water level and some water may have to be drained off before one is through. For those who do not have steam, the tank can be filled more, because, as soon as the water comes to a boil, the bags will settle down. Several more can then be put in by pressing them down under the hot water and holding them there with the screw.

Always be careful not to apply too much heat as it will boil over very easily if the water level is high in the tank. If the water gets too high, an overflow pipe connected at the bottom and extending to within four or five inches of the top will serve to lower the water level without loss of wax, which goes to the top as soon as it melts.

When the water has boiled for an hour or two, turn the screw clear down and shut off the heat. It is not necessary to have so much pressure on the bags, but they must be kept under the boiling water. To push the bags further under water and flatten them out more I place on top of the last rack an empty hive body with a plank across for the screw to rest on.

Parts of wax rendering outfit—the L-shaped steam pipe, the bench screw and crosspiece, and the racks used between bags of old combs.

After the heat is turned off it will be some time before the dirt will settle to the bottom and the wax clarify enough to be dipped off. Let it stand till it is beginning to harden around the edges of the tank or when it is about 160° F. When wax is poured off into vessels at that temperature, it will loosen easier when the vessels are inverted. If you have plenty of common milk crocks to pour the wax into, it will not stick regardless at what temperature it is dipped out. A common dipper is best to dip with. Dip till you reach the water, but be careful or dirt will be brought with the wax. Stop and let the remainder of the wax harden in the tank. This wax which will probably have dirt on the under side can be rendered again in the next run.

Have a coupling soldered into the lower outside corner of the tank, screw in a street elbow and insert in that a pipe long enough to reach within four or five inches of the top of the tank. This pipe, fastened by a catch on the centre rim, serves as an overflow pipe as described

above. To drain the tank, lower the pipe level with the floor and let the water run off. It is not necessary to drain the tank, but draining makes it much easier to remove the rendered wax bags and racks. The wax will be much clearer if fresh water is used with each run. Empty the refuse out of the bags and if any wax particles are left, render it again in the next run. Put this bag of refuse in the bottom of the tank as the pressure and heat is a little greater there. The bags can be used over and over for the whole season.

Another use for this wax tank is to disinfect equipment if one has American foulbrood. Boil the infected frames in strong lye water for twenty minutes and they will be safe to use again. The tank will hold 75 or more full-depth frames to the batch. They must be held under water which can be easily done with one rack and the screw. I also boil all my old frames that I re-wire to clean them of wax and dirt, as the stronger frames on the market now are not weakened much, if any, by this process.

I can not see why beekeepers who have American foulbrood will waste time and money with disinfectants, and not be reasonably sure of its safety. Burning the hives would soon put one out of business. With a wax tank, render the combs, boil the frames in water, use the blowtorch on the hive parts, and you are safe. This takes no more time than to disinfect and you are money and time ahead.—Irvan Gunter, Manvel, North Dakota.

SPINSTER JANE SAYS—

Since last writing, your presidential election is long since over. The riddle is read, and my queen has a name at last; one of which we hope she will have reason to be proud one day. With the usual fickleness of all mortals, we shout "La reine est morte," in one breath, and "Viva la reine," in the next. Such is life.

Whether it be in the White House or in my bee colony, Madam Roosevelt will do well to live up to the high standard set by Mrs. Hoover, and will find it hard to equal her predecessor's record of performance.

Is there any danger of my bees becoming democratic-minded, or are these little creatures immune to political influence, and so man's superior? But of course there is no danger. Are not they females all?

Another year has come and is well upon its way, leaving behind a year long-to-be-remembered because of its poverty, misery and heartaches, consequent upon unemployment. What will 1933 have in store for us?

Whatever it may be, let us face it bravely, heads and chins up. Whiners and grouchers are all too plentiful. Let us form the big exception, and like Scrooge, wear smiles instead of frowns and scowls.

But shucks! Why sermonize?

I had a wonderful surprise a few days ago. Our local paper printed an article, stating that two eminent scientists of London had succeeded in analyzing the food fed young queen bees, and had found that it contains vitamin E. Of course, I had never dreamed that Spinster Jane's humble query would lead to this, but there was the answer!

I hastened to find a food-chart, but vitamin E was not listed among the foods. Small wonder and most wise under the present time of depression! That small vitamin induces productivity!

I see my way clear to making a fortune. I shall buy me a laboratory, and there I shall search and research, until I isolate that vitamin, or whatever they do to things of that sort. Once gotten where I can lay my hands upon it, I will use it in preparing a poultry-food that will beat all the laying mashes in existence, in insuring eggs in abundance when prices are high.

I've been thinking, too, of a few other places where vitamin E may be used to advantage. One would be to supply it in liberal doses to all fanatics on the question of birth control. This would settle that vexing question in somewhat new fashion.

I'm wondering, would the thing promote sex-appeal—that elusive allure, about which all our best-selling stories prate so much! If so, Hollywood would benefit to such an extent that Marie Dressler and Polly Moran would find it hard work to shine brightest in the Movie Heavens. Fed sparingly to spinsters—Oh, Oh! It might even rid the country of our pesky old bachelors, too.

Now, all craziness aside, here's wishing Gleanings, its editors, contributors and subscribers, a happy and prosperous 1933. —Spinster Jane.

How the Jay Helped Beekeeping in the Years That Are Gone.

Some thirty years ago there was a great scientific discovery made in connection with beekeeping and poultry raising. No one seems to know just who should be given credit for this great revolutionary discovery for the discoverer, through modesty, desires to keep his identity a secret. It so happens that The Jay is not so modest and while he lays no claim to having made that great discovery, he does claim the credit for greatly improving it, so when, in the future, you are honoring the great men who have gone on before by building monuments to them and naming your pet cats after them, please remember The Jay, but let us not be in a hurry about it.

The discovery is this: Combine beekeeping with poultry raising using the bees as incubators, filling the supers with hen's eggs, allowing the heat from the colony below to hatch the eggs. This is magnificent. This is where The Jay comes in. He went one step farther and crossed the chickens with the bees by dipping Doolittle cell cups on the end of a pitchfork handle grafting hen's eggs into each. Now siree, believe it or not, every single chicken the bees hatched in this way laid four thousand eggs every day and any hen that failed to maintain this average got her neck wrung for this was no place for weaklings. They were able to gather a surplus of lettuce from neighbors living eight miles distant.

Well, we only ran one colony for chickens as that was all we had. Things were going along nicely in the balmy month of June. The chickens were buzzing, the bees cackling, and the drones crowing when, lo and behold! who should walk into our back yard apiary but the bee inspector. He is awfully ashamed of what he did now, so I shall not give his real name; but for want of a better name, we shall call him Johnson.

He looked things over, put his nose up into the air and said, "I smell something." I replied, "Why not? Isn't that what you have a nose for? You see, as every flock of sheep has a black one, so also has every batch of eggs a bad one. All bad eggs give off an unpleasant aroma and that is what you smell." He replied, "Rats! Bee eggs do not smell." I tried to explain, but he would not listen and continued, "That colony is diseased and I am going to burn it up."

"Can't you wait a minute, I want to—"

"No, I can't wait. I have something else to do than—here, give me a match."

In a jiffy he had dug a hole in the ground, put my colony into it, poured on gasoline and burned it up.

The inspector said, "I smell something."

I sued Johnson in court asserting my rights under the constitution of the United States of America that I could not be deprived of my rotten eggs without due process of law. Johnson fought the case and escaped punishment through a technicality of the law by proving to the jury that my bees had fowl brood.

[Wait a minute, Jay! If your stories keep on getting bigger and bigger, some skeptic, during a spell of indigestion, might question their truthfulness. This would be a near calamity. Since the fishing season will soon be here, most of us can swallow some tall stories, but those mammoth queen cells are liable to make some of us dizzy. How many of those big cell cups did you give to the cell building colony and what percentage were accepted? Come on with more details.—Editor.]

From North, East, West and South

SOUTHERN CALIFORNIA.—If delightful weather with sunshine and a sprinkling of clouds floating overhead could make us happy, all would be perfect. Only about one-half the amount of moisture that we had last year has fallen to date (January 4). While vegetation is not suffering, when we have the moisture in the ground we do not have to keep looking at the sky like the ducks to see if it is going to rain.

A few beekeepers still have small lots of honey, but by far the greater per cent of the 1932 crop has gone to market. The market is firm and there is a demand, but prices are still about as at last report, except that there is a decided advance in the demand for white and water-white orange honey. This has become the leading honey so far as a strictly distinct variety and flavor is concerned with an increasing demand from year to year. While sage honey is most beautiful and satisfactory, the crop is so uncertain that orange honey, of which we get something of a crop every year, has steadily increased in favor until today it tops the market in price. Practically all of the bottlers like a flavor of orange in the blend of honey they place on the retail stands. It is the wide-open stands that are selling the honey in the West today. The president of a wholesale grocery company said: "We have sold three times as much honey as any year heretofore." His company supplies stores with honey packed in small containers. This we feel is a good thing for the beekeeper.

I can not help but feel that one of the beekeepers' greatest shortcomings is their lack of knowledge concerning the honey market and the crop prospects throughout the country. This knowledge would at least give a fellow some idea of what he should receive for his honey. A few dollars spent for club dues and bee papers would in many cases save him hundreds of dollars. The buyer expects you to pay for his trips around the country to see the beekeepers, and if he can buy your honey a cent or so under the market, well, do you blame him?

Beekeepers will hold their annual meeting January 16. We expect to have 100 members by that time and will have an old-fashioned meeting on the fundamentals of the bee business as well as endeavor to inform beekeepers on the crop prospects and honey prices, especially orange honey. Since starting this article a buyer called up asking us to see to the loading of a three-ton lot of orange-sage honey. This practically cleans up the 1932 crop of honey around Corona. If all localities are as well sold out it looks good for 1933.—L. L. Andrews, Corona, California.

NORTHERN CALIFORNIA.—When I wrote, in November, that bees in the eucalyptus district of the Bay Region had six frames of brood, I wondered if the editor would not question the truthfulness of the statement and throw the paragraph out. For some reason he did not, and the result has been that I have had to answer several letters of inquiry from beekeepers who want to locate where they can have bees early. At the time, I stated the condition was unusual, and that what the outcome would be was a guess. My guess was that something might happen in March or April about swarming time.

The happening took place much earlier. In less than a month we had a record-breaking cold spell; snow fell in all the Bay Region—a very unusual occurrence. To make matters worse, the damp snow froze on the trees. The blossoms were all killed. The honey flow was over. The bees were not able to care for so much brood and in a few days they were busy carrying out the dead brood. Some beekeepers reported the bottoms of the hives covered with dead bees to the extent that entrances were closed causing further loss. This did not occur in my own yard but there the brood was reduced to three frames from six.

Colonies Were Set Back by Cold Weather But They Should Make Up Their Loss and be Ready for Alfalfa.

The cold storm is past. The loss of brood will be made up and our bees will be in fine condition for the alfalfa which is our second crop. We still have hope of some surplus from eucalyptus. The demand for eucalyptus honey is growing. Many doc-

tors are now recommending its health-giving qualities.

Our county associations are affiliating as never before with the state association. The depression has taught us valuable lessons—lessons of courage, of cheerfulness, of patience, of perseverance, of understanding helpfulness to the other fellow, of combining the talents of all in building our state association into one solid unit, and turning into prosperity what has seemed to us disaster.—Cary W. Hartman, Oakland, California.

UTAH.—As 1932 has finally faded away beekeepers still find that demand and prices for their products are A. W. O. L., as they say in the army, "Absent without leave." While demand for the local trade has been very good, car-lot orders have

Western Honey is Being Hauled 600 to 1000 Miles to Market by Truck.

been nil or nearly so. As a consequence the large buyers have bought by truckload, hauling from 600 to 1000 miles. When the truckmen haul oranges and other products on their return trip, they have shaded the railroad rates from 30 to 50 per cent.

It's a queer anomaly when the government aids in building great railroad lines across the country, which have made the country what it is, then the government and states build parallel concrete traffic lines that are taking both passenger and freight business. What it means I don't know. But the beemen will gladly accept cheaper transportation both in getting in their supplies and transporting their finished product to market.

Bees went into their winter pack in good condition, but they flew most of the time up into December, which no doubt consumed some stores but nothing to be alarmed at. We had some very cold weather during December, as low as 30° below. There are very few bees with sufficient packing to overcome that temperature, but that is nothing to be alarmed at, for bees do not freeze to death. If they die, it's starvation because the zero period is too long to move honey.

Some beekeepers in this and adjoining states have become discouraged and have neglected their bees. This will not solve their problems. While I never saw honey as cheap as it is now, I have seen conditions not as favorable. Now is the time to do our best and stick.

It's hard to keep the ragweed out of the corn, but we don't notice it at husking time; and while I am past 80 years of age, and have only one leg, I am going to keep the ragweeds down and stick even though the fall was very dry and the snowfall is below normal. Let's keep step with our vision and do our best.—M. A. Gill, Hyrum, Utah.

MANITOBA.—At this date, January 9, beekeeping seems to be looking up. Two new bee-supply concerns are establishing themselves in the city of Winnipeg. At least four new concerns are making comb foundation. Orders for package bees are being booked in larger figures than ever before.

This seems to have come about because all the producers of honey are sold out and have their money. It is not a movement to start a lot of beginners but a move by small producers to enlarge their operations because nearly all other lines of agriculture have let them down.

Entomologists Sound Warning that Grasshoppers May be Worse This Year Than Last.

However, 1933 does not look any too promising. Entomologists tell us that grasshoppers may be present in greater numbers than they were in 1932. Many automobile owners had to wear special screens over their radiators in 1932. If the hoppers are any worse in 1933, the results will be worse than low prices for farm products. There may be nothing to sell. In some districts last year, hoppers played havoc with the little clover plants on the new seeding, although they did little damage to the maturing crop. This may result in a shortage of nectar-bearing plants for next crop.

One bright ray of hope comes from the amount of snow covering the ground. This will give us much needed moisture. The present covering is over soil in which there is very little frost, and it will be taken into the soil as soon as it begins to thaw. All country roads are blocked for motor traffic because of the snow.

We are all set for our beekeepers' convention. Our theme for this meeting will be the merchandising of honey. A num-

ber of our producers have graduated a little too quickly from the small-producer class into the carload class, and find selling to brokers a different procedure from selling to country storekeepers. The broker on the other hand looks on the producer as a factory operator who should turn out his tins of honey every one alike in quality and packing. At this convention we are going to devote an entire session to the discussion of these problems and invite the brokers to meet with us and talk matters over.—L. T. Floyd, Winnipeg, Manitoba.

SOUTH DAKOTA.—With a succession of spring-like days during the first of December in which bees were permitted to make necessary flights, we are anticipating a minimum loss for the winter. Although the thermometer ranged as low as 24° below for several days later in the month, the year end and the beginning of the new has been so moderate that what snow we had is nearly gone.

Beekeepers remain optimistic in spite of the generally deplorable conditions in other elemental industries, although some who purchased comb honey to supplement their own crops for carload shipments took discouraging losses as later markets weakened. Producers of extracted honey continue largely impervious to market scares so long as sales keep step with expenses, for they know that cans of honey are good property and will keep. However, real cut rate prices are in effect in a few localities.

In view of the fact that state agricultural economists report the farmer's purchasing power at 42 per cent of the normal or pre-war level, there is little wonder that all sales are draggy and the demand for comb is comparatively less. People are looking for the largest quantity at the lowest price. Locally the glass package has come to be almost a thing of the past.

State Bee Inspector R. W. Vance reports, for the year ending last July, almost 11,000 colonies inspected of which 463 were infected, a notable decrease in per cent since the previous year. A tribute to South Dakota beekeeping is evident in the fact that of the large number inspected only 89 were in box hives. Due to the fact that over half the counties are entirely free of foulbrood and that inspection work was confined to heavily infected areas, the proportion of infection is much higher than would be the average for the entire state.

Larger producers are already figuring whether "to be or not to be" among those who will ship in packages for the coming season. New equipment is also of pertinent interest. Surely it will take worse than this last depression to make a beekeeper pessimistic.—J. F. Norgren, Junius, South Dakota.

COLORADO.—In some sections of Colorado, the winter has been unusually severe. In northern Colorado, the month of December was eleven degrees below the normal mean temperature. Bees were not permitted to fly for an abnormally long time, resulting in a flight at temperatures far below comfortable. In sunny locations, the snow was densely spotted with dead bees anxious for a flight. Stores in this section are subnormal in quality following a very short honey crop. The largest part of the state has been more favored as to temperatures.

Amount of Moisture Available for Irrigation Is Spotted for the State as a Whole.

Some parts of Colorado continue dry. Others are receiving a good quantity of moisture, adequate for irrigation. The dry sections of the state face a far from enviable situation unless heavy snows or copious spring rains come.

Colorado beekeepers regret to hear of the passing of Mr. Charles E. Kendle, of Montrose. Mr. Kendle is survived in the business by his brother, W. H. Kendle. The late Mr. Kendle was well known among the fraternity in Colorado.

During the Christmas season, it was a privilege to come across something new—Christmas candles made of beeswax. Not only that, they were impregnated with various odors—odors of the great outdoors, sage, pine, juniper, and cedar. We are acquainted with the pungent odor of the Christmas tree when first brought into the house, but this does not seem to last. These candles, in the making, had the needles and leaves of sage, pine, fir, juniper, and cedar mixed in the wax and pressed in the outside of the softened wax.

Apiary inspection will suffer to some extent in Colorado during 1933. County appropriations for this work are being

temporarily discontinued in a few cases and in others reduced. Plans are being formulated to take care of inspection at a much reduced cost and with equal or greater efficiency than formerly. Beekeepers are volunteering their services to further the plan. Under the system perfected in 1932, the usual amount of inspection may be done in each county, at a much reduced cost, with the co-operation of the commercial owners.—R. G. Richmond, Fort Collins, Colorado.

TEXAS.—The weather during the month of December was equal, so far as the bees were concerned, to weather in the North. For 25 days the bees were closely confined in the hives, sometimes from cold but more often by extremely wet weather. Colonies on scales show very little consumption of stores. This means that the bees are lying clustered. Neither have there been any dead bees carried out in front of the hives.

Progressive Commercial Honey Producers Are Buying Out Beekeepers Who Have Become Discouraged Because of Low Prices of Honey.

A number of beekeepers have been buying job lots of colonies. The prices have been extremely low. Many of the back-lot beekeepers and farmers have sold their entire holdings to commercial beekeepers. Beginners and small beekeepers are much discouraged because of low prices of honey. Commercial beekeepers and professional honey salesmen are confident of better prices the coming summer.

The honey plants are better than normal. The semi-arid plants upon which the beekeepers in southwest Texas depend pay little attention to temperature; they are brought into bloom by moisture. During the past month all of them, such as catsclaw, huajillo, and guayan, have made a fine growth and have set bloom buds. The rainfall up to date plus the accumulated moisture from the past year is sufficient for the early bloom of mesquite. Horsemint seedlings are in abundance. With spring an early crop is to be looked for.

The meeting of the Southern Beekeepers' Conference at Houston was remarkable. In enthusiasm it was up to the standard of any beekeepers' meeting but the widespread of flu almost eliminated the attendance and the program. The greatest feature of the meeting was the exhibit of honey and other beekeeping commodities. This was planned and put on by the State Apicultural Research Laboratory, assisted by some ten or twelve of the most prominent of the Texas beekeepers.

The hotel management took sufficient interest in the exhibit to have a count made of the visitors to the mezzanine floor during the period and, "believe it or not," it was reported that 10,000 people passed the gate during the four days of the exhibit. At the end of the time most of the honey was sold and the proceeds donated to the American Honey Institute. —H. B. Parks, San Antonio, Texas.

ARIZONA.—Today it is partly cloudy and warm. Bees are watering at all apiaries which means brood-rearing. I believe the colonies are stronger here at this elevation than I have ever known them to be at this time of year. Both eggs and sealed brood can be found in most colonies at this time. They went into winter with a large amount of honey which accounts for their being so strong now.

We have had fine rains and snow in the mountains through December. Desert vegetation has started and the chances are that there will be rain enough to keep it coming. It does not get cold enough to kill it here. Flowers of some description can be found over the desert region every month of the year, though not in quantities large enough for bees to work on during the middle of winter. Cottonwood will furnish the first pollen sometime during February. It looks like bees generally will come through winter in fine shape where they have plenty of stores.

I know of three large sales of honey being made in December. There may have been other sales that I did not hear of. There is some encouragement in knowing that most of the large lots of honey will be moved before the new crop comes in.

Some beekeepers are not giving their colonies the attention that they should, due to the low price of honey at this time. It is true honey is low in price, but most everything else we buy is as low and sometimes lower in proportion to the price of honey. If all would go to work and forget about the depression, conditions would soon improve.—Leslie Wedgworth, Oracle, Arizona.

KANSAS.—At the meetings of apple orchardists during the past fall and early winter, there was much interest in the subject of pollination of apple bloom by honeybees. Many orchardists have made inquiry in regard to obtaining colonies of bees this spring to be placed in orchards for the purpose of cross-pollination of apple blooms. Many orchardists are looking for every advantage possible to obtain a good crop return from their orchards during the coming growing season. Losses due to the four most prominent injurious pests—the codling moth, apple curculio, the brown mite, and the common red spider—have turned the orchardists' attention to the control of these pests and to increasing a set of fruit.

Condition of Honey Plants Has Been Improved by Additional Moisture and Bees Are Wintering Well.

Prospective crop conditions were much improved in northern Kansas just before Christmas. About a two-inch ran came and melted from two to eight inches of snow, and most of this was absorbed by the soil. The soil was extremely dry previous to that time. Various kinds of clovers were able to hold on and maintain themselves so there was very little injury due to dry weather. Central and western Kansas is extremely dry. South-central Kansas has had somewhat more moisture than central Kansas.

Severe cold weather came earlier than usual by about a month. This cold weather began December 6, with temperatures ranging from sub-zero to somewhat below freezing for a period of two weeks. Beginning with a rain storm just before Christmas, the temperature has been very moderate for winter. Bees which were not given proper protection during November had to withstand the severe temperatures of December. On the whole, since colonies have a very good quantity of stores, and the temperature has moderated, bees have been able to take care of themselves and have had several cleansing flights since the cold weather in December.

Due to the adverse financial conditions of beekeepers in general, there will be no beekeepers' program during Farm and Home Week at the Kansas State College during the second week in February.—R. L. Parker, Manhattan, Kans.

LOUISIANA.—This state had four freezes during December. Temperature in the northern portion dropped to as low as 15 degrees. The southern portion along the coast fared better with about 26 degrees. All of these freezes covered about six days with warm weather between enabling the bees to fly when it was not raining. The month's rainfall was heavy; there were only about five days in the 31 that the sun shone. Temperatures varied greatly, in some parts of the state, at times as high as 78 degrees. Bees were active and consumed much honey.

There was a great flow of honey from goldenrod last fall, and many supers were filled. This assured the beekeepers that their bees would be well provided for until spring. In some apiaries I found four and five shallow supers filled with honey. The beekeepers told me that, on account of the low price and slow sale of honey, they did not expect to extract this until forced to do so next spring.

Here Is a Process by Which Bitterweed Honey Can be Made Edible.

The bitterweed (*Helenium tenuifolium*) of north Louisiana is a great honey producer, coming during mid-season. If other honeys are not extracted before that time the entire crop will become more or less bitter. In some cases this is difficult to avoid. Many beekeepers do not remove this crop from the hive as the honey is unfit to eat. If you find this condition next year, extract the honey and put it in barrels; let it remain there for about four months. The pollen will have settled to the bottom by that time. Then draw off to about six inches or less from the bottom, and you will be surprised to find that the honey is just as good as any other.

The package and queen-bee producers are preparing for a big comeback during 1933, even though the depression has hurt them during the past two years. Some of them increased their sales to almost double during the past season and are ready to duplicate their sales this year. Many have profited by the five-pound package for pollination purposes in the fruit growing districts of the North and West.

Today, January 5, I noticed bees heavily laden with light colored pollen entering the hives, possibly from water maple. —E. C. Davis, Baton Rouge, La.

GEORGIA.—There has been excessive rainfall since April 3, 1932, the day the great drouth broke. This was followed by protracted cold spells during the fall and first part of winter, consequently the bees had a poor chance to gather nectar, while brood-rearing was normal. The result is, we have the bees, but very little honey for them.

In the more cultivated areas in the southern part of the state a great crop of Mexican clover sprang up after the crops were laid by. This gave a good yield and the bees are in excellent condition, but no surplus was stored. In the Piedmont Plateau there was a fairly good honey flow during summer and the first part of fall from snow vine first, then followed a very light flow from cotton, also from goldenrod, and aster that came along later. Here the bees are strong but the amount of stores are rather short. General feeding will not be necessary. In the mountain region bees are in only fair condition because the honey flows during the spring and summer were not heavy enough for storing, and in the best mountain locations a small amount of surplus was stored.

Bees Are in Poorest Condition in the Best Honey-Producing Belt in the State.

In the extreme coastal plain section along the coast and for a hundred miles inland, which is our great honey-producing belt, the bees are in extremely poor condition. Fifty per cent of them are already dead from starvation, and the remainder will be dead before the honey flow early next spring unless they are fed at once. The only way of feeding at this late hour is to pour honey or very thick sugar syrup on the top-bars directly over the small clusters of bees. This can be kept up during the winter and early spring. Wholesale feedings with thin syrup or honey should not be done, as it will cause too much disturbance and losses among the bees. The pre-eminent thing is to feed enough to keep the bees alive until early spring honey plants begin to bloom.

The honey market still remains very weak and prices extremely low, ranging anywhere from 3 to 4½ cents a pound. This is carried-over honey, which is being worked over and put into a salable condition.—J. J. Wilder, Waycross, Ga.

NORTHERN INDIANA.—The exceptionally cold weather in December, with temperature ten degrees below zero, has been followed by heavy rains and several days of fine warm weather, thus enabling outdoor bees to fly. Bees in cellars so far are wintering well and where the cellar is properly insulated, they should come through in good condition.

Prices for honey, both wholesale and retail, are the lowest ever known in this locality. It seems that every beekeeper who has a few pounds of honey, is bent on underselling his neighbors, so that the price is now approaching zero. Large buyers are offering prices that will barely pay for the labor of extracting and the cost of containers, freight, and other expense incident to marketing. We can only hope that these conditions will not long continue.

If leading beemen in every locality would get together with both the larger and smaller producers and educate them as to the necessity of organized co-operation in the matter of obtaining a reasonable price for their product, it might help. I realize, however, that this is a difficult task. There are some who think it an advantage to undersell and who just will not co-operate.

Honey sales, so far as quantity is concerned, have been fairly good. It is believed that most of the smaller beekeepers are now sold out. Some of the commercial producers, holding for better prices, still have on hand a considerable quantity, especially of amber honey. Advertising over the radio and otherwise is believed to have helped in moving the crop. Most honey sales have been to house-to-house canvassers, who are combing the streets of every city and town. These are men who in normal times would be engaged in the mills or other industries. House-to-house selling may have something to do with the smaller sales through the stores.—E. S. Miller, Valparaiso, Ind.

WESTERN NEW YORK.—At this time it seems reasonably well assured that the apiary inspection work in this state will be maintained in full efficiency for the coming season. The New York State Horticulture Society, in addition to the various beekeeping associations, has been active in presenting before the authorities at Albany the necessity of maintaining this state function. This is as it should be,

for it is in the fruit-growing region with their proximity to many towns and many small neglected apiaries providing sources of infection and favorable conditions for the spread and development of disease, together with the great movement of bees within these districts for pollination purposes, that presents a real problem in disease control. Our County Board of Supervisors has appropriated $500 to augment the state funds for use in this county. This I believe is a good practice and should be followed by more counties.

In these times when all public expenditures are being so strenuously scrutinized and public officials are bending every effort to effect economies in public affairs by curtailment and elimination of non-essential public activities, it is highly gratifying to have our public officials so recognize the importance of beekeeping as a basic branch of agriculture, essential to the welfare and prosperity of the entire commonwealth.

Here Is Another Movement to Substitute Honey for Cheap Syrup in State Institutions.

Largely through the influence of Chief Inspector Gould, expressed through the Department of Farms and Markets, New York state institutions are inquiring for considerable quantities of honey. I have not known of any actual purchases but no doubt these will be forthcoming shortly. Mr. Gould through the Public Relations Bureau of the Department of Farms and Markets, has also released some real good information on honey by means of radio talks and literature.

It is a matter of considerable satisfaction that honey markets, consumption, and prices have born up under the combined burden of increased production and the economic depression and with thousands of articles competing for the daily menu of the world as never before. With the average price level of all farm commodities around 54 per cent of the pre-war level, it is a matter for congratulation that honey probably averages somewhere about 70 per cent of pre-war prices. I believe the activities for popularizing honey is largely responsible for this good showing and that the American Honey Institute is deserving of considerable of this credit.—H. M. Myers, Ransomville, N. Y.

SOUTHERN INDIANA.—Things are rather quiet in the bee line in our locality. Honey plants seem to be in perfect condition and as far as indications go, everything points toward a good honey crop in 1933.

We have had some unusual weather for this locality. There was a heavy snow fall in early December, followed by a fall in temperature. Cold weather prevailed for nearly the whole month of December, the thermometer registering below zero much of the time. The blanket of snow kept the ground from freezing and when the snow melted away the vegetation looked fresh and green.

Colonies With Heaviest Packing Winter Better Than Those With Less.

Bees seem to be wintering well. There is only a handful of dead bees in front of the unprotected hives and none whatever in front of the eight-colony packing cases. I have observed closely this winter, and find the more packing the colonies have (provided it is so arranged as to keep out the cold) the better they winter. When the weather warmed up, the colonies having most packing were the first to fly out. However, very few bees flew out from the packed colonies at any time as they had no cause to fly. When the sun struck them, the unpacked ones flew a great deal and spotted the hives in the neighborhood a great deal, showing they had been consuming large quantities of stores.

Honey is moving rather slowly and at a low price, but it seems to me it is faring better than most other foods in this respect. While it is moving slowly in stores, the peddlers are doing well.

Cut comb honey seems to be gaining in favor as it is attractive, can be sold in ten-cent sizes, is more economical to put up, and the yield per colony is more. It has several objections. It is a messy job to put up, and it must be thoroughly drained or it will crystallize quickly.

It appears to me that we must give the consumer what he wants as that will increase honey sales. Some want fancy white comb honey, some want liquid honey, some prefer it crystallized, some prefer chunks of comb honey with liquid honey poured over it, and others prefer a small ten-cent size of cut comb honey. Let's give them what they want.—Jay Smith, Vincennes, Indiana.

ONTARIO.—As these notes are being written in the second week of January, rain is falling and fields are muddy. Aside from a short period of cold weather when winter first set in (the calendar would say that it was late fall instead of winter) this is the kind of weather we have had for six weeks. Precipitation has been above normal, I think, but most of it in the form of rain. At present we have no snow in our locality. On a recent trip to the shore of Lake Erie I found the same condition, and I presume this applies to most of the province south of Georgian Bay.

While we enjoy a mild winter and open roads, this is not a normal condition for our latitude, and we generally pay for the mild weather by having clover and wheat damaged by the continual thawing and freezing that always occurs in weather like that we are having at present. Fields of wheat are very brown already, but, of course, not vitally damaged as yet. But the next two months may give us lots of snow and cold weather as well.

In looking over the market reports in the January issue of Gleanings, one certainly need go no further to establish the fact that honey and beeswax prices are at abnormally low levels. Honey is very low here in Ontario, but we must admit that the western part of the United States in particular has us beat.

Beeswax, which was formerly a nice item for ready cash, is now so low that I hear of some beekeepers who are burning up old combs instead of rendering them into wax. Foundation is not as cheap comparatively, and I understand that some contemplate getting small mills and making their own instead of paying present prices for getting their wax made into the finished product. But many like ourselves are not in need of much foundation and wish to sell their wax; at present the outlook is not good.

Short Cuts and Labor-saving Machinery in Beekeeping Are Not Helping the Unemployment Situation.

Commenting on Mr. Pettit's article in January Gleanings on short cuts in commercial beekeeping to meet low prices for honey, the editor says that low prices have compelled beekeepers to do these things and automatically means in many cases more honey to help to contribute to still lower prices. This is a subject that has given me much concern and the editor has not mentioned the only factor that comes to my mind when this subject is considered. Under normal conditions Mr. Pettit would have given employment to at least one more man for the season, possibly two for part of the time at least. The same principle holds good for almost all other lines of industry and we all know what the result is. More short cuts and more machinery, more men out of work, and more misery for the masses of unemployed. This principle of cutting down expenses by short cuts and all kinds of labor-saving machinery may be necessary, yet, after all, in so far as helping us to get out of the hole we are in at present, it is something like trying to pull ourselves out of a bog by tugging at our boot tops.

Unfortunately I am not of a handy trend and naturally not able to employ many labor-saving cuts that more fortunate people do, but just at the present I am not worrying so much about it. Under present conditions I think that everyone who can possibly afford to do so, should hire more instead of less than they did when times were normal. Yes, I am well aware that my position in this question will be challenged, but let me say that I never wrote anything that I felt surer about being right.

During the past few weeks I have had several letters from young men asking for employment for next season. As we have four boys in our own family and no other openings for work are in sight at present, we all have to engage in beekeeping, the only work available to them. But it is with great regret that I have to write to all these applicants stating that we have no room for their help. I remember with great pleasure the happy associations we have had in the past with fine young men who spent some time with us and are today among our dearest friends.

In conclusion, may I urge all who can do so, to give employment to as many as circumstances will admit, remembering that we are not now living in 1929. We are content with much less returns than we received at that time, taking our extra dividends in the way of satisfaction for having helped at least one person who otherwise would have been out of a job and unhappy.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

A Yellow-jacket's Feast

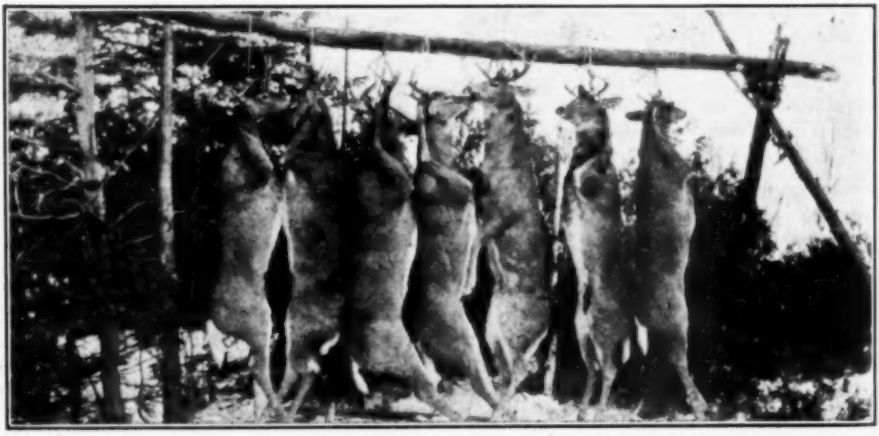
Late on the afternoon of September 5 I saw a yellow-jacket alight upon a loquat twig, carrying an apparently freshly killed honeybee, from which he proceeded deftly to amputate head, legs, and wings one after the other, allowing them to drop to the ground. Next he worked energetically with his jaws at the underside of the abdomen near the tip. I think he was after the honey in the honey stomach as the abdomen looked shrunken when the yellow-jacket suddenly transferred his attention to severing the abdomen from the thorax. Then with the abdomen still dangling by a thread, he began gnawing at the opening in the rear end of the thorax. While at this, something seemed to frighten him and he darted away carrying the remainder of his feast with him. —Flora McIntyre, Pasadena, California.

Eat Honey and Kill Deer

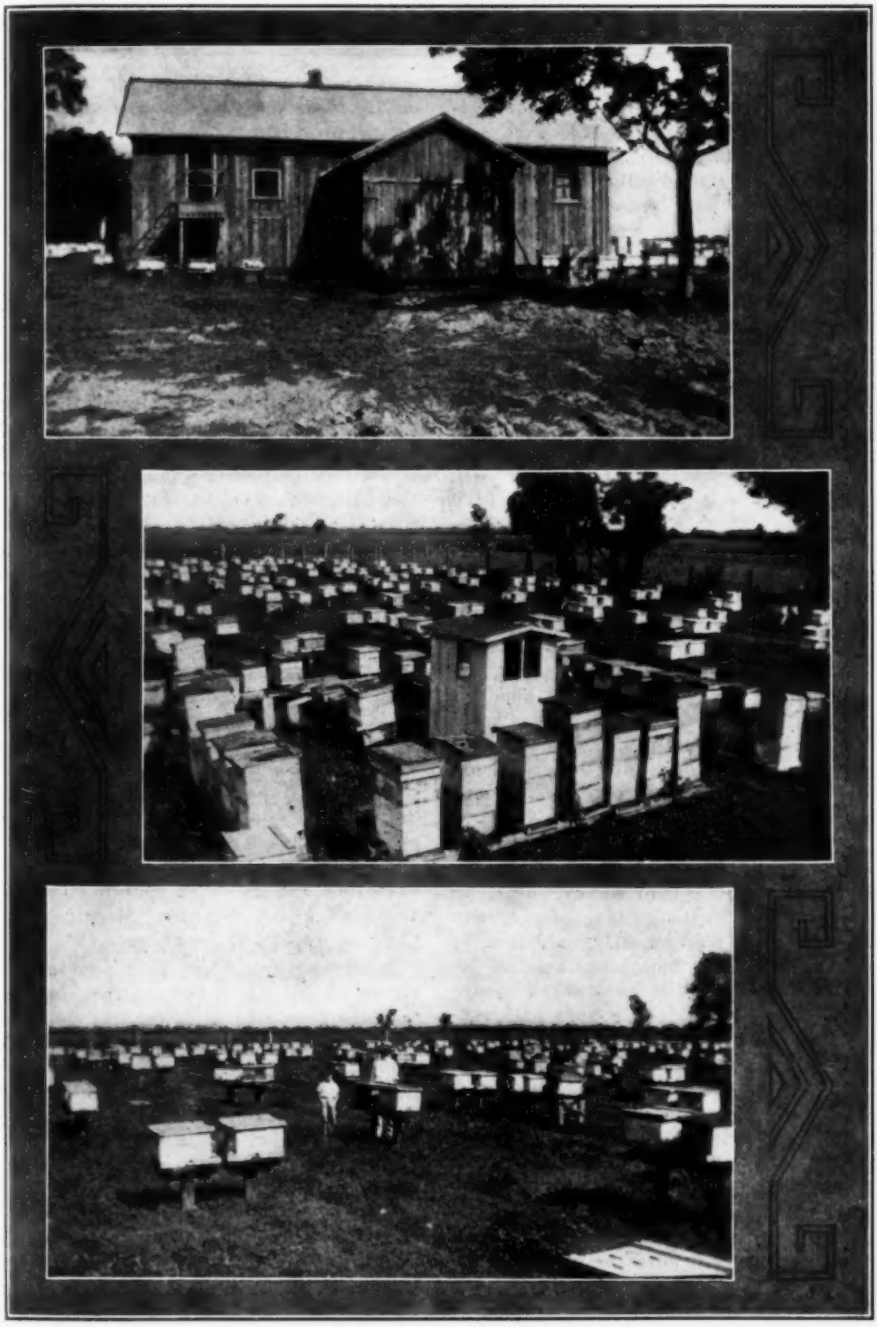
A party of nine hunters, of which I was a member, spent two weeks in camp in the wilds of northern Michigan during the open season for deer hunting just passed. We killed eight bucks. One was killed after the picture was taken. The most interesting part to beekeepers might be, that I took along a 60-pound can of honey, and when we broke camp it was practically empty. I am think of starting a slogan in the sporting magazines, "Eat Honey and Kill Deer." Russell H. Kelty estimates that if all hunting camps would do as well, it would make an outlet for several cars of honey, which is true, but it would be hard on the deer.—Floyd Markham, Ypsilanti, Michigan.

Bees Set Good Example

The past is but a memory. We must look to the future. Let's keep faith in the bees so as to keep up our enthusiasm, without which we are sure to fall into decay. The depression, while serious and deplorable and a severe jolt to our aspirations, has not been without some blessings. Fortunately it has taught us that money has only a monetary value, and there is much to be desired in preference to it. Our industry provides us employment which is necessary to our happiness, the pursuit of which makes life interesting and worth while. By working together we can accomplish the most toward putting beekeeping in its rightful place among commercial enterprises. The American Honey Institute lights the way for unbiased and unbridled co-operation just as the bees themselves would have it done, "for the common good of all." Let us support it loyally. Resolve in 1933 to keep better bees, produce and pack higher quality honey, and, by helping the Institute to function, be enabled to market it more profitably. —N. C. Jensen, Crawford, Miss.



The result of a hunting expedition by a group of Michigan beekeepers.



REARING EARLY QUEENS IN SOUTH

Upper—Extracting plant of Garon Bee Company, Donaldsonville, Louisiana, where honey, to be fed back in rearing queens, is extracted. Middle—The cell-building colonies and grafting house in foreground and nuclei in background. Lower—Large nuclei for mating queens mounted on ant-proof stands as protection against Argentine ants.

Just News

Editors

The Golden Blossom Revue, a radio program featuring Golden Blossom Honey, is broadcast through Station WJZ each Sunday at 1:30 P. M., Eastern Standard Time.

A bulletin dealing with *Bacillus larvae*, the organism which causes American foulbrood, by Dr. Carlo Foresti, was recently published by the Veterinary Department of the University of Bologna, Italy.

The mid-winter meeting of the Missouri State Beekeepers' Association will be held in the Statler Hotel, St. Louis, Mo., on February 28, in connection with the meeting of the American Honey Producers' League.

A series of radio talks on beekeeping by the Iowa Agricultural College will start on March 6. These will be presented over radio station WOI at 12 o'clock noon. Timely topics in apiary management, especially for Iowa conditions, will be discussed as the season advances.

In an article on processing and blending honey in the Australasian Beekeeper, Hugh Langwell advises mixing in a few cans of cold honey when the hot honey is put into the tank for blending. This helps to cool the honey quickly, thus preventing discoloration by remaining hot too long. The cold honey can be from the previous batch.

A paper entitled "Degree of Pigmentation and Its Probable Relationship to the Mineral Constituents of Honey," by H. A. Schuette and Kathora Remy, University of Wisconsin, was recently published in the Journal of the American Chemical Society. It shows that darker colored honeys contain more silica, iron, copper, and manganese than lighter colored honeys.

Morley Pettit, long prominent in beekeeping circles, extensive honey producer at Georgetown, Ontario, package-bee producer at Albany, Georgia, and versatile writer for beekeeping literature, was united in marriage to Miss Louise Risdon, Toronto, Ontario, on January 7. This is the culmination of a romance of school days. This journal joins the many friends of this couple in wishing for them many happy years together.

The Wyoming Beekeepers' Association has recently been reorganized, the constitution revamped to meet present economic conditions, and new officers elected, thus putting the association again definitely on its feet. Wm. Mosteller, Casper, was elected president, and C. L. Corkins, Cheyenne, secretary-treasurer. Headquarters will be maintained at the office of the secretary, 2020 Carey Avenue, Cheyenne.

The University of Illinois Agricultural Experiment Station has published a bulletin entitled "How to Make Honey-Cream," by Prof. P. H. Tracy. This is bulletin No. 387. It tells how to make a delicious mixture of high-test sweet cream and extracted honey.

L. M. Bryant and T. W. Cookinham, of the firm of Hamilton, Wallace & Bryant, Los Angeles, California, are now sole owners of that corporation, having purchased the interests of Roth Hamilton and his son. Mr. Cookinham has been in charge of the honey department for several years. Their warehouse and honey plant will be continued at 1329 Willow Street, Los Angeles. The firm will continue to operate the Los Angeles Honey Company.

In "Nature" (London) for October 8, 1932, there appeared an article by Prof. Sir Leonard Hill and E. F. Burdett in which it is shown that royal jelly contains vitamin E, the vitamin necessary for reproduction. Honey and pollen fed together did not give the same effect. Thus it appears that the enormous reproductive abilities of queen bees is attributable to the same food factors which operate in higher animals. The article is reprinted in full in the Bee World for December.

A mimeographed list, E-297, giving the names of dealers in bee supplies, queens, package bees, and colonies, was compiled in March, 1932, by the Bee Culture Laboratory, Washington, D. C., in order to give prompt and impartial service to the many requests for information of this sort. A revision of this list is now being made in order to bring it up to date. Those who desire to be included on the list again this year, or who wish to be entered for the first time, should send their names and addresses together with the information as to what they handle, to the Bee Culture Laboratory, United States Department of Agriculture, Washington, D. C. Queen breeders should state the race of bees. The list will be made up in March.

Bees, Men and Things

(You may find it here)

"I am getting along fine with my bees. In 1931 I produced about 1800 pounds of nice honey from 22 colonies; in 1932 I produced 1200 pounds. I now have 44 colonies."—J. M. Nipper, Tazewell County, Va.

"I find considerable pleasure in the sweet job of selling honey. We are selling to the first personal contact men, the merchants. We believe this is the most practical and ethical way to reach the consumer."—Otis B. Achord, Hancock County, Ohio.

"Dr. Phillips' articles on his trip to Europe are very interesting. I am pleased to note that he will give us articles about conditions in Russia, as I have been intensely interested in the so-called great Russian experiment."—C. E. Watts, Bourbon County, Kansas.

"Our county agent took some colonies to Essington where fall flowers are abundant and from two colonies, each with two queens, he got over 100 pounds of honey per colony. I took 30 colonies and got 500 pounds, a lot of foundation drawn out, and three colonies with American foulbrood. I took them home early to treat the sick."—C. B. Shortlidge, Delaware County, Pa.

"Last season was the worst I have ever seen for the bees here. They barely made a living, although I have all of them in good condition for winter. Last winter was so mild that the bees gathered honeydew from old field pine trees. The summer was very dry. There seemed to be no nectar in the flowers and no honeydew in July at the usual time."—Frank Derrenbacker, Jr., Buckingham County, Va.

"I note the article in December Gleanings, page 750, relative to queens being superseded with the double-chambered hives. Yes, I have the same results here. I use double chambers summer and winter for extracted honey. I have plenty of good pollen both spring and fall. I leave both chambers as full of honey as the bees can fill them. The fact is, I have better success letting the bees requeen themselves than I have buying queens."—E. H. Busler, Spencer County, Indiana.

"Last spring, I inspected the apiaries of a beekeeper who sells bees and queens, and incidentally told him that I had to sell a ton of hay in order that I might eat and sleep away from home on this trip. As my friends know, the governor has cut out our appropriation for inspection work. This did not kill the work but did stop my salary and traveling expenses notwithstanding the fact that beekeepers of the state paid in enough to maintain the work."—J. V. Ormond, Van Buren County, Arkansas.

"I wish to express appreciation of the article entitled 'Experience with Package Bees,' on page 30 of the January issue. In my previous reading I have not happened on anything very specific regarding colony development of package bees on foundation. I do not expect to approach Mr. Hansen's record, but his story gives me a good general guide as to what feed packages need and how much, what equipment they will use and how fast, and about what speed they can be expected to show under some circumstances."—P. W. MacNeill, Middlesex County, Mass.

"About two years ago I thought it would be interesting to have some bees and produce a yearly supply of honey. We had just moved from the city, and with only a few copies of Gleanings in Bee Culture I realized there was considerable to understand. I also realized that the yearly supply already being produced is very great. Since then I have purchased a yearly household supply from one of your advertisers. I believe that honey is not appreciated nearly so much as it should be, especially in this region."—Mrs. Herbert R. Nevens, Lincoln County, Maine.

"I have just finished compiling the bee-inspection report for the past year and have also reviewed the reports since bee inspection started here in 1925. The first report showed 3.4 per cent of the colonies inspected had American foulbrood. The second report, which covered 1927 and 1928, showed 3.1 per cent of the colonies examined were diseased. The third report covering 1929, 1930 and 1931 showed 1.91 per cent. The report for 1932 shows 1.78 per cent. This is only a gradual reduction but we hope to keep up the good work and see even the last percentage gradually reduced."—J. A. Munro, Cass County, N. D.

Food Department

Malitta D. Fischer

Honey in the Home

Food made with honey is good, for honey in itself represents quality. Honey is our oldest sweet, and as such, commanded a prominent place in old-time celebrations. Its use can be traced from old biblical days up through the rise and fall of the Roman Empire and into Queen Elizabeth's day. Through the ages honey has been a symbol for goodness and satisfaction, and today we are again realizing its unusual possibilities in our daily menu.

In America we do not consider flowers an article of diet, but in the eastern countries they have been used for thousands of years in the preparation of food. The Turks made a rose marmalade from white roses. The Chinese and Japanese made a similar one from red roses. In China roses are preserved in honey. The mixture is sealed in crocks, steamed and used as a spread for cake. But when we are enjoying the fragrance and sweetness of honey we are really getting the very essence of the flowers themselves. All summer the bees are busy gathering the nectar of the most fragrant flowers and storing it up for us as honey.

Have you ever noticed how many men enjoy the food combinations their mothers used to make? Contented husbands are especially fond of old-time foods. In fact, they usually speak of the good old substantial foods as their favorites—hot biscuits and honey, gingerbread, nut cake, and oatmeal cookies. Grandmother's most popular supper was a very simple menu of corned beef hash, cole slaw, winding up with hot biscuits and honey for dessert. Such a menu is economical and helps stretch the dollars a little more.

Long before sugar was invented, honey was used in the most prized recipes. It was served on royal occasions. It was a luxury. But today honey is very inexpensive and is really coming into its own. The twentieth century homemaker is using honey in her breakfast combinations, is dressing her luncheon salads with honey, is flavoring her tea services with honey, is baking her ham for that company dinner with honey, and is surprising her evening guests with flavorful honey-nut sandwiches and delicious crunchy honey cornflake macaroons.

Honey consists chiefly of a mixture of sugars. It is a valued natural carbohydrate food of high calory content, retaining its natural biolgoical elements because it has not passed through any mechanical method of processing. Honey contains small amounts of all the minerals used in building and maintaining body structures.

In one of its press releases entitled, "Honey High in Food Value," the United States Department of Agriculture stated:

"Honey is one of the best of the high energy-producing foods. Because it is composed almost entirely of simple sugars, it can be assimilated with ease. Most sugars require action by the gastric and intestinal secretions to break them down into simple sugars similar to those occurring naturally in honey. Because it is easily assimilated, honey is of importance where normal digestive activities have been impaired by disease or old age. Honey can be utilized by the body without placing much of a burden on an enfeebled digestive tract and is also recognized as a valuable food for babies and young children."

Dr. Randolph G. Flood, in his article, "Selection of Sugars in Infant Feeding," Archives of Pediatrics, January, 1925, stated:

"In honey we have a composite mixture of dextrose and levulose with the latter predominating as all American honeys are levoratory. Honey owes its ease of absorption to the free available dextrose in the mixture, and its laxative action to the levulose fraction, which is absorbed slowly, so that it eventually reaches the large intestine. These properties make honey a very valuable sugar in the treatment of constipated bottle fed infants, and in our hands have benefitted these children a great deal."

According to Browne (Bull. 110, U. S. Dept. Agric. Bureau of Chemistry) the average composition of honey is:

Water	17.70 per cent
Sucrose	1.90 per cent
Fructose (levulose)	40.50 per cent
Dextrose	34.48 per cent
Dextrin	1.51 per cent
Ash	0.81 per cent
Undetermined	3.71 per cent

Before we discuss the use of honey in the home, you might be interested in comparative caloric values of sugars and syrups. These figures are taken from "Feeding the Family," by Mary Schwartz Rose, Department of Nutrition, Teachers College, Columbia University.

	100 Calorie portion measure.	Wt. oz.	Distribution of Calories, Fat, Protein.	Carbohydrate.
Corn syrup	1¾ tblspns	1.5	..	100
Honey	1 tblspn	1.1	1	99
Maple sugar	4 tblspns	1.1	..	100
Maple syrup	1½ tblspns	1.2	..	100
Molasses	1½ tblspns	1.2	3	97
Sugar (wh. gr.)	2 tblspns	0.9	..	100
" white loaf	3½ lumps	0.9	..	100
" wh. powd	2 tblspns	0.9	..	100
" brown	2 tblspns	0.9	..	100

In other words, 1 tablespoon of honey based on caloric value is equal to 1¾ tablespoons corn syrup, 4 tablespoons maple sugar, 1½ tablespoons molasses, etc. The above chart just concerns the calories within given portions of various types of sugars. Honey has about 50 per cent more sweetening value than the best cane molasses. The best grade cane syrup contains about 30 per cent of water, while honey contains 17 per cent water.

Honey can be used in the preparation of practically all food services. Tested recipes are available for its use but if you are interested in working over some of your own combinations, the following points may be helpful.

A cup of honey weighs about 12 ounces, but is not quite 1-5 water. A cup of sugar weighs about 7 ounces. Honey then contains a little more sugar than the same measure of cane sugar. A cup of honey (12 ounces, of which about 1-5 is water) contains roughly 9½ ounces of sugar.

In substituting honey for sugar in a recipe, the amount of liquid would be reduced one-fifth cup for each cup of honey used. Measuring cups do not show fifths. There are 16 tablespoons to the standard cup. After measuring your liquid, it would perhaps be easier to remove 3 tablespoons and 1 teaspoon of the liquid than to try to figure out how to fill the standard cup four-fifths full. Example: A cake recipe calls for 1 cup sugar and ½ cup liquid. You wish to use 1 cup honey, therefore you would measure ½ cup liquid and remove 3 tablespoons and 1 teaspoon of the liquid from the original ½ cup.

This is just a general rule, but if carefully followed gives very good results. In some cases where certain ingredients like chocolate, dates, raisins, nuts, mixed fruit are used, the cake mix will use as much liquid as a regular sugar cake due to absorption qualities of the mixed fruit or chocolate. Certain cakes made with honey when first baked do not seem as sweet as sugar cakes and seem soggier and heavier. These same cakes on aging become moist, flavorful, and improve in texture. Honey has the power to hold moisture and for that reason honey cakes and cookies may be made weeks and even months in advance of the time required. In fact, it has been found that cakes made with honey according to tested recipes are the better after aging from one to three weeks, depending on the amount of honey used. Take for instance, honey date bars the first day they are made. You will find them tough, not sweet enough, and hard to chew. Let them age for two weeks and you will be amazed at the change that has taken place. You must try it yourself to be convinced. If you want a honey date bar that you can eat within a day or two after it is made, add ¼ cup shortening to the recipe.

Oven temperatures are very important in baking honey goods. The carmelization point of honey is low, due to its levulose content. Therefore, baking the mixture slowly and evenly and exactly the right amount of time is essential. Tested recipes give the temperature and length of time. Try to follow these. If you have no oven regulator, use what you consider a slow oven. When the cake has shrunk from the sides a bit, you lightly touch the upper crust and if the dent comes back, your cake is done.

Honey can be used in practically every food service requiring sweetness. It is a healthful sweet and a tasty one. Many unusual flavor blends may be secured through the addition of a bit of honey. Beekeepers are realizing the value of honey in cookery and are interesting themselves in seeing that it is used in their own homes. Beekeepers should see that honey is used daily in their homes. Recently I had the privilege of having lunches at three beekeepers' homes and in every case, the dessert service was honey gingerbread. Honey gingerbread seems such a favorite.

(Continued on page 128.)

Talks to Beginners

Geo. S. Demuth

Beginners who do not already have colonies of bees should now make plans to obtain them. In the southern tier of states, they should be obtained this month. In the middle sections they should be obtained not later than March or April, but in the northern tier of states it is not necessary to have the bees on hand until about May 1 or even later.

Beginners are often confused as to the best method of making a start with bees. Some do this by purchasing established colonies from a neighboring beekeeper, while others purchase hives in the flat from a dealer, nail them up, and put foundation in the frames ready to receive package bees from the South at the proper time to build up in time for the main honey flow of the season. Others wait until the swarming season and have a neighboring beekeeper hive swarms in their empty hives. Still others get their start in beekeeping by cutting bee trees and transferring the bees into modern hives, or they may purchase bees in box hives or gums at a very low price and transfer them. Much depends upon circumstances as to the best method of starting, but whatever the method, the bees should be obtained early enough so that they can build up to full strength in time to store a crop of surplus honey this year. For this reason it is not advisable to wait until the swarming season, for in most localities that is too late to secure a crop of honey this season.

In recent years more and more beginners make their start by purchasing package bees from the South, having them arrive about two months before the main honey flow (usually in April or May) in order to build them up to full strength before that time. In localities in the South which have an early honey flow, it is usually best to obtain established colonies this month or next. In some southern localities where the main honey flow comes later in the season, package bees can be built up in time, but as a general rule, it is advisable to start with package bees in the North and with full colonies in the South.

Selecting Good Colonies

There is a great difference in the value of colonies of bees, especially at this season. Many colonies are practically worthless at this time on account of being weak in numbers, or short of stores, or both. Beginners often make serious mistakes in judging the condition of colonies and are greatly disappointed with the result of a season's work in trying to build up weak or otherwise worthless colonies to profitable strength. The most important items in judging the value of a colony of bees at this season are the number of bees and the amount of honey on hand.

By taking off the cover it is not difficult to determine the strength of the colony by noting the size of the cluster. In some cases it is easier to look in from below by raising the hive from the floor

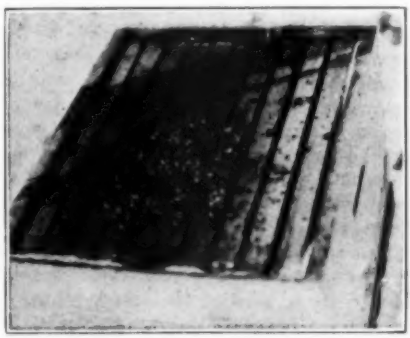


Fig. 1.—This colony in a single-walled hive occupies five spaces between the combs at temperatures just below freezing.

When the temperature is near freezing, the bees should occupy at least five or six of the spaces between the combs. In double-walled hives, or hives packed in outer winter cases, the bees should occupy six or eight of the spaces between the combs. If they occupy less, the colonies are under strength. In Fig. 1 (a single-walled hive) the cluster occupies five spaces, and in Fig. 2 (a double-walled hive) the cluster occupies eight spaces. These are both good colonies for this time of the year.

The amount of honey can be determined approximately by weighing the hive as it stands, then comparing the weight with a similar empty hive. The combs when empty weigh about one pound each, which must be added to the weight of the empty hive in making this compari-

son. A well-provisioned colony at this time should have at least 25 to 30 pounds of honey. While colonies that have less may be able to survive until nectar is available in the spring, too often such colonies must be fed a large amount of sugar syrup in order that they may rear enough brood to build up to full strength.

There are many other things that should be considered in selecting colonies, such as whether the hives are standard size and well made, whether the bees are of good stock or scrub stock, whether the combs are straight and the cells are worker size (about 5 to the inch) without large patches of drone size (about 4 to the inch), whether the queen is young or old, and many other items. When there is a choice between a colony that was built up from a prime swarm last summer and the parent colony, it is usually best to select

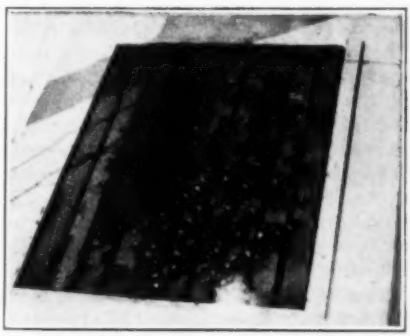


Fig. 2.—This colony in a double-walled hive occupies eight spaces between the combs at temperatures just below freezing.

the parent colony since it contains the young queen and is usually heavier with honey.

Sometimes neglected colonies and colonies in poor condition can be purchased for $1.00 each or even less. Ambitious beginners often find great pleasure in purchasing such colonies and correcting their defects. Weak colonies can be strengthened by adding package bees from the South at the proper time. Colonies short of honey can be fed sugar syrup liberally during the spring and thus built up rapidly. Colonies having old or otherwise poor queens can be requeened with good ones, and colonies in old dilapidated hives can be transferred to new ones.

Care of Bees During Winter

Bees are abundantly able to take care of themselves during winter, as a rule, provided they were in proper condition last fall. In the South, where bees can fly freely every few days, the most important thing in the care of the colonies is to make sure that each has plenty of honey to last until the flowers begin to supply nectar. Colonies should have not less than 25 pounds of honey and in some cases much more will be needed when they begin to rear large numbers of young later in the month and during March and April. In the North, colonies that have a good sized cluster and an abundance of honey and which are well protected in double-walled hives or in winter packing cases, need no attention during the winter.

While it is not advisable to disturb bees during the winter by opening the hives or otherwise, the inquisitive beginner will want to take an occasional peek into the hive for the sake of the information and inspiration to be had in this way. This does but little if any harm and is often quite a satisfaction and source of information.

The Winter Cluster

Beginners, especially in the North, will be interested in noting the manner in which the bees form a compact cluster during cold weather, the size of the cluster varying as the temperature varies, being larger and looser when the weather warms up and more compact and smaller when it turns colder. It is surprising what a small space a large number of bees can occupy if the interior of the hive becomes quite cold. The bees occupy not only the spaces between the combs but also the vacant cells in the comb within the cluster. With a bee, apparently asleep, in practically every vacant cell and others crowded in the spaces between the combs, they thus form a somewhat spherical cluster which is almost a solid mass when the hive is cold. While the bees on the outside of the cluster appear to be quiet, those on the inside may be active since they generate heat by muscular activity to maintain the proper temperature. As long as food is available and their vitality is not exhausted, the bees can keep up the necessary temperature within the cluster and thus survive cold spells. If a few bees are taken from the hive and subjected to freezing temperatures, they soon freeze to death, but by huddling together in this fashion they are able to survive severe winters.

Gleaned by Asking

Geo. S. Demuth

Distance of Separation Necessary for Pure Mating

Question.—I have one colony of pure Carniolans. I want to keep it pure to try out for this locality in comparison with Italians. Would 350 yards be far enough to move this colony from the others to keep the drones separated?—Frank Derrenbacker, Virginia.

Answer.—No. Drones fly a considerable distance. In some cases, they have been found two miles or more from their hives. It would probably be necessary to have this colony at least two or three miles from any other in order to be reasonably sure of pure mating.

Inverting Brood-chambers to Prevent Swarming

Question.—A large producer in this state operating 2500 colonies uses eight-frame Jumbo brood-chambers and frames which can be locked top and bottom. During the swarming season they go through the apiaries every seven or eight days and turn the brood-chambers over. This eliminates the stupendous job of cutting out queen cells. The bees start new cells. The former one dies because of being turned point upward. Would you advise changing to this kind of system?—L. W. Bushby, Idaho.

Answer.—During the period when reversible frames and reversible hives were the fad (40 to 50 years ago) one of the advantages claimed for inverting the brood-chamber was that it would prevent swarming, but after extensive trials of this feature it was given up as a swarm-control measure. When queen cells reach a certain stage in development, inverting the hive will cause the bees to tear them down, but recently-started queen cells or even some with good-sized larvae but not ready to seal, are not torn down. The bees simply float the larvae outward by putting in a large supply of royal jelly, then remodel the cell so that it is in normal position. By inverting the hive at certain regular intervals there is always a chance that some cells would be in the right stage of development to permit the bees to remodel them. Furthermore, even though all of the cells are so far advanced at the time the hive is inverted that the bees would destroy them, they would, in many cases, start new cells immediately and swarm within a day or two instead of waiting until the new cells are sealed or nearly ready to seal, as is the normal schedule. In your state where swarming is more easily controlled than under eastern conditions, inverting the brood-chamber every seven or eight days would no doubt reduce swarming to a certain extent, but it could not be depended upon to prevent all swarming.

The Place of Honey in the Diet

Question.—In recent correspondence with Physical Culture Institute of Nutrition, New York City, I was told that honey should be classed among the condiments. What do you think about this statement?—Iver S. Andersen, Minnesota.

Answer.—We certainly can not agree with the statement that honey should be classed as a condiment. It is certainly more than a flavoring ingredient used to give relish to other food. Instead, it is a wholesome food itself, having a high energy value. Perhaps the experience of the one who expressed that opinion was largely with strong-flavored honey not suitable for table use. Mild-flavored honey, such as you have in Minnesota, can be substituted for sugar, as you of course know, without imparting to the food a strong flavor. Many so-called experts in nutrition fail to recognize the fundamental difference between honey and sugar as a food. The sugars of honey are the two simple sugars, levulose and dextrose. These do not require digestion and are absorbed shortly after being eaten and are said to pass into the blood stream within ten or fifteen minutes, thus supplying immediate energy. On the other hand, ordinary sugar must first be digested (converted into levulose and dextrose) before the energy is available. Many individuals experience difficulty in digesting ordinary sugar and suffer from fermentation that often takes place during the process of digestion. This can not occur in the case of honey since it is absorbed before there would be time for fermentation.

Value of Common Legumes as Sources of Nectar

Question.—The following legumes are now being largely planted by farmers: vetch, Korean lespedeza, cowpeas and soy-beans. Are these plants sources of nectar? If so, what quality of honey could be expected from them?—John F. Cooke, Missouri.

Answer.—The cultivated varieties of vetch yield considerable nectar. Some species have extra floral nectaries which, under some conditions, yield considerable quantities of nectar in addition to that from the flowers. In British Columbia, Washington, and Oregon, vetch supplies a considerable portion of the surplus honey. The honey is white or light amber with a mild flavor. Korean lespedeza is rather new in American agriculture, and its value as a honey plant remains to be determined. Some varieties of lespedeza have been grown as forage plants in the

South for many years. While bees work on these varieties, they apparently are not important sources of nectar. Cowpeas yield nectar freely through extra floral nectaries, and some are of the opinion that they yield also through the flowers. The honey is a deep yellow in color and has a strong flavor. Apparently soy beans are not dependable nectar yielders for all parts of the country since reports as to their value are conflicting. In some localities soy beans apparently yield nectar freely, while in others they are of little if any value as honey plants. The honey is said to be light in color, of pleasing flavor, and rather light in body.

Producing Chunk Honey Without Excluder

Question.—Will the queen lay in shallow extracting supers when producing chunk comb honey using frames with starters only? I have been told that combs containing cells in which brood has been reared then filled with honey is unfit for use. Is this because of its appearance, or is it otherwise unfit?—W. Fred Bogard, Indiana.

Answer.—Under some conditions, especially during a good honey flow, it is not necessary to use an excluder when producing chunk honey in shallow extracting supers. However, there is more danger of the queen entering the supers to lay eggs in shallow extracting supers than in regular comb-honey supers, so, it is usually safer to use the excluder. This is not necessary when producing comb honey in sections. The cells in which broqd has been reared and later filled with honey should not be included in chunk comb honey, but, in cutting the honey, the portions of the comb which have contained brood should be cut out. The reason this portion of the comb is not suitable to be included in the chunk honey is that the cells contain the cocoons left by the young bees. By holding the combs before a good light, any cells which contain cocoons can easily be located so that in cutting the honey one can cut around these.

Annual White Blossomed Sweet Clover

Question.—I want to experiment with the annual white blossomed sweet clover (Hubam) and would like to know where I can obtain seed. How many pounds will it take to plant an acre? When is the best time to plant?—W. J. Phifer, Texas.

Answer.—You can no doubt obtain the seed from the O. M. Scott Co., Marysville, Ohio, or perhaps from other large seed houses. From 12 to 15 pounds of hulled and scarified seed per acre is usually recommended. If seed in the hull is used, at least 20 pounds per acre should be allowed. In the South, seeding should be done in the winter, choosing a time when there is enough moisture to give the young plants a good start. In the North seed-in-the-hull, or unscarified seed, should be sown some time during January, February or early March, choosing a time when the ground is honeycombed with frost so that the seed will be covered when the ground thaws. Scarified seed should not be sown in the North until late March or April. If sown too early before danger of freezing weather has passed, there is danger of the young plants being killed soon after germination since scarified seed germinates quickly. When sown late, a clover-seed drill should be used or some provision should be made for covering the seed, since there is danger of the young plants being killed by a spell of dry weather unless the seed is well covered.

Feeding Bees While in Cellar

Question.—My 60 colonies of bees were put into the cellar too light, since I was not able to feed them at the proper time. By placing partly filled combs on the alighting-board, I find that the bees remove the honey. The temperature runs usually between 40° and 50°. Can the bees store this heavy honey at that temperature, or are they just consuming it? Will it be too much disturbance to feed them in this way?—J. R. Richmond, West Virginia.

Answer.—If you can induce the bees to take the honey from the combs placed on the alighting-board, they will carry it into the hive and store some of it. In doing this, of course, they will consume a portion of it. A much better way would be to extract this honey and thin it a little by adding hot water, then give it to the bees in feeders, or, feed sugar syrup. In this way you could give each colony enough to last until spring with a minimum of disturbance. Friction-top pail feeders should be used and the pail of syrup should be placed directly on top of the frames in contact with the cluster. In this way, it is possible to feed the bees in the cellar in a satisfactory manner. While feeding during winter is, of course, disturbing to the colony, it is better thus to disturb them than to take the chance of starvation. By giving enough to last until spring at one dose, the disturbance is not prolonged and the bees should quiet down after storing the syrup and winter well. It is quite natural for bees to move honey during the winter. As honey is consumed in the upper portion of the cluster, the cluster moves to envelop more, and some of it is moved from the margin of the cluster to the center at intervals during the winter.

Clouds and Sunshine

(Continued)

The two beekeepers spent considerable time discussing possible plans for disposing of their honey crop. One day Bright had an idea: "Why not sell extracted honey right from the tank, by the pound, weighing it out in containers furnished by the honey customers?" The idea seemed feasible, but on attempting to think the matter through a little further he wondered just how people who needed honey would buy it if they did not know he had it for sale. He already had a honey sign in front of the house by the road, quoting prices of honey in glass and tin containers. It had not occurred to him until now that he could advertise his honey in his local paper. But that would cost money. Yes, but how could he sell 'em if he didn't tell 'em.

And so, with some trepidation he placed an ad in the local paper reading as follows: "Pure Honey for Sale, at only 10c a pound. Bring your own fruit jars, buckets, pails, or anything that will hold honey. Stop at the honey sign in front of James Bright's place." Bright could scarcely wait until the next issue of the paper appeared the following day. It occurred to him that he did not have much of his honey processed and in suitable condition for selling. That evening he quickly heated and strained two 60-pound cans of honey into his tank to be ready for any reasonable emergency.

Sure enough, customers began coming to his house the following afternoon and they kept coming far into the evening. It was then apparent to Bright that more honey would have to be processed to be ready for any possible emergency. The honey continued to move. It seemed that this method of selling honey appealed to his customers. They took pride in furnishing their own containers. Furthermore, they could see the honey drawn from the tank and weighed, right before their eyes.

Some of the customers had little if any idea about the weight of the honey, or, in other words, how much honey it takes to make a pound. For instance, one man wanted one pound of honey and brought a 14-quart milk bucket. The honey scarcely covered the bottom of the bucket. Another customer wanted to know if three pounds of honey would go into a gallon can. Bright sold over 500 pounds in one week which meant $50 in cold cash, and that looked mighty good to him. Some customers would tell their friends about the delicious honey. In some instances, customers drove 30 miles after the honey. It was pure. It was produced by a real beekeeper, and it seemed better than honey offered for sale in the stores.

When Anthony visited Bright and found out how the honey was moving, he almost decided to move into town so that he could follow a similar plan for marketing his crop. He was quite excited the day he called. It seemed that the bear had made another visit to his apiary the previous night and had knocked over one hive of bees in order to get some of the honey out of the combs. Anthony was aroused by the barking of old Spot. He arrived in the apiary with his rifle just in time to see some dark object disappear into the bushes.

Anthony sets a bear trap.

The bear trap ordered from Sears Roebuck had just reached him that day. It was a huge, rather cumbersome double-spring affair with a heavy chain attached to it. Anthony had done considerable trapping of small animals, like mink and muskrat, but never had he set a bear trap. The one thing that caused him the most concern was the danger of his dog or some neighbor's dog getting into the trap. It was quite apparent that he would have to keep old Spot tied up in his shack during the night while the trap was set.

A. N. ONYMOUS.

(To be continued.)

Sell and Buy Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Copy should be in the 15th of month preceding.

HONEY FOR SALE

We do not guarantee the reliability of honey sellers, although we require strict references from them.

CLOVER HONEY—Sturdevant, St. Paul, Neb.

TRY WIXSON'S HONEY. Dundee, New York.

CLOVER honey in 60-lb. cans. Roy Littlefield, Exira, Iowa.

CLOVER honey, in new 60-lb. cans. Wells B. Crane, McComb, Ohio.

CLOVER honey, comb and extracted. Lewis Klaty, Carsonville, Mich.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

FOR SALE—Basswood honey in 60's, or pails. C. S. Watts, Exeland, Wis.

FANCY clover honey in 60-lb. cans. Write for prices. J. P. Moore, Morgan, Ky.

CLOVER HONEY—New cans, $6.00 case Sample, 15c. Edw. Klein, Gurnee, Ill.

DELICIOUS palmetto-mangrove blend honey in barrels. Sample, 6c. Peter W. Sowinski, Fort Pierce, Fla.

CLOVER, basswood, buckwheat and mixed extracted and comb. F. W. Lesser, Fayetteville, N. Y.

NEW crop clover, also new buckwheat in 60's and 5-lb. pails. Earl Rulison, Route 1, Amsterdam, N. Y.

FOR SALE—Comb and extracted in most any form wanted. State your wants. H. G. Quirin, Bellevue, Ohio.

EXTRACTED and comb, clover honey; color, extra white; satisfaction guaranteed. Tom Baldwin, Cecil, Ohio.

WHITE honey, new crop; dozen 5-lb. pails, $4.80. C. J. Morrison, 1235 Lincoln Way West, South Bend, Ind.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

CHOICE white clover honey, crystal clear; new sixties, 5c; also amber, 4c. Don Barrett, Howell, Michigan.

CLOVER HONEY—White, light amber, amber. Any package. Depression prices. C. J. Baldridge, Kendaia, N. Y.

LIGHT amber clover honey, slight basswood flavor in 60-lb. tins, $3.00 here. Albert Borning, Interlaken, New York.

CLOVER honey, new 60-lb. cans, 5½c lb. Discount on large lots. Sample, 15c. Jos. H. Hoehn & Son, Ottoville, Ohio.

WHITE clover basswood blend extracted honey in new 60-lb. cans, 5c per lb. for case of 120 lbs. or more. L. S. Griggs, 711 Avon St., Flint, Mich.

STOLLER'S excellent quality clover honey, comb, cut comb and extracted. White stock, unexcelled. Write Stoller Apiaries, Latty, Ohio.

FOR SALE—White clover comb. C. Holm, Genoa, Ill.

AMBER and light amber, case or ton. E. S. Miller, Valparaiso, Ind.

CLOVER honey in new 60's. Sample, 10c. C. E. Glover, Kalamazoo, Mich, R. R. 6.

WHITE clover, amber, buckwheat honey in new 60-lb. tins. Lee Gable, Romulus, N. Y.

CHOICE clover honey in 60's, case, $6.00. Sample, 10c. Wm. J. Martin, Croswell, Mich.

CHOICE clover honey in 5, 10, 60 lb. tins; also fancy and No. 1 comb. Harry T. Gable, Romulus, N. Y.

FINE clover extracted honey, case or carload, at right prices; also mild amber. Ross B. Scott, La Grange, Ind.

OHIO'S finest comb and extracted white clover honey. Prices on request. Sample, 15c. Geo. Morrison, Cloverdale, Ohio.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

RASPBERRY and milkweed honey. Comb and extracted. Prices to comply with the times. Hubbard Bros., Boyne Falls, Mich.

HONEY FOR SALE—From clovers and fall flowers; new cans and cases. Samples free. W. S. Earls & Son, New Canton, Ill.

CARLOAD or less Michigan clover honey. New cans and cases. Write us your needs. E. D. Townsend & Sons, Northstar, Mich.

WHITE clover honey, extracted, comb, and chunk. Sample, 1 lb., 15c; no stamps. F. W. Summerfield, Grand Rapids, Ohio.

FOR SALE — Clover honey scientifically steam-heated, water white, $6.60 per case; unheated, $6.00. Virgil Weaver, Moville, Iowa.

HONEY FOR SALE—1932 crop, white clover, 1932 crop, basswood in new 60's. Write for prices. Sample, 10c. Meyer Toom, Route 4, Knoxville, Iowa.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Colo.

CLOVER comb, fancy, $2.50; No. 1, $2.00 per case. Extracted in new sixty-pound cans; clover, 6c; clover-buckwheat, 5c per lb. Walter A. Wood, Naples, N. Y.

FANCY white comb, $2.75; No. 1, $2.25; fancy amber or buckwheat, $2.00; No. 1, $1.75; clover extracted, 6c; amber, 5c; buckwheat, 4½c. C. B. Howard, Geneva, N. Y.

HONEY—We sell the best. Combs in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. A. I. Root Co. of Chicago, 224 West Huron St., Chicago, Ill.

58 CASES fancy comb honey. E. G. Haas, Cook, Nebr.

WHITE extracted honey, in 60-lb. cans. Alice Burrows, Oran, N. Y.

WINKLER'S clover honey, $6.50 per case. Vera Winkler, Joliet, Ill.

BASSWOOD-white clover extracted honey. S. W. Markestad, Canton, Minn.

FOR SALE—Choice clover honey, 5c. Sample, 15c. W. A. Stith, Troy, O., Rt. 4.

NEW clover or buckwheat honey in sixties and kegs. Henry Williams, Romulus, N. Y.

FANCY white clover, comb and extracted, lower prices. F. J. Smith, Castalia, Ohio.

BUCKWHEAT honey, special price in ton lots. Wendell Botsford, Horseheads, Route 3, N. Y.

CLOVER-BASSWOOD blended honey for $6.00 per case. Leland Farnsworth, Davison, Mich.

NEW YORK state basswood and amber honey. 2—60-lb. cans for $5. I. J. Stringham, Glen Cove, N. Y.

FOR SALE—Amber honey in 60-lb. cans at reduced prices to close out. Geo. M. Sowarby, Cato, N. Y.

BUCKWHEAT comb honey for sale, special low prices on carrier lots. Noel J. Loucks, Springboro, Pa.

MICHIGAN white clover-basswood honey of finest quality in new 60-lb. cans. Orval W. Dilley, Grand Ledge, Mich.

WHITE clover-basswood honey. New 60-lb. cans, by case, 5c; by ton, 4¾c. A. A. French & Son, Theresa, N. Y.

WHAT OFFER—For thirty cans new sixties clover and ten amber honey? Edwin Ewell, 115 Hawkins St., Ypsilanti, Mich.

CHOICE white clover extracted honey in new 60-lb. cans, two per case, $6.00. Sample, 15c. Noah Bordner, Holgate, Ohio.

HOWDY'S HONEY—White extracted from central and northern Michigan. Also fancy white comb. Howard Potter, Ithaca, Michigan.

FANCY white comb in six or eight-case carriers. Fine white extracted in 60's and 5-lb. pails. Case or ton lots. Very reasonable. Wilbur Green, La Grange, Indiana.

LIGHT amber clover in new 60's, 5½c; clover or buckwheat in 5, 10 lb. pails; very reasonable; No. 1 buckwheat comb, $2.00 case. H. B. Gable, Romulus, N. Y.

FOR SALE—Five tons fancy comb honey, wrapped and unwrapped, $2.25 per case, at our place. Quantity lots, 10 per cent discount. N. B. Querin & Son, Rt. 4, Bellevue, Ohio.

HAVE you cancelled all those debts yet? Both ways?? Sure??? O. K., then let's go get our new circular of our brand of honey maple syrup, table syrup, etc., at prices that will make you more money than us and bring you repeat orders always. Are you on?? Griswold Honey Co., Madison, O., U. S. A.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only or on C. O. D. terms except when the buyer has thoroughly established his credit with the sellers.

WANTED—Carlots honey, also beeswax, any quantity. Mail samples, state quantity and price. Hamilton, Wallace & Bryant, Los Angeles.

CARLOADS OR LESS—All grades extracted honey; also comb honey. Mail samples and delivered prices. C. W. Aeppler Company, Oconomowoc, Wis.

WANTED—A car or less quntity of white honey, in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, Birmingham, Mich.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

FOR SALE

INCREASE honey crop two-fifths. Lhommedieu, Colo, Iowa.

FOR SALE—Queen cage labels, with the cut of the queen, or without. 21513 Donaldson, Dearborn, Mich.

STEEL top Barnes sawtable, $25.00; Cushman 4 H. P. gas engine, $25.00; excellent condition. Appeldoorn, Hamler, Ohio.

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Assoc., Denver, Colo.

FOR SALE—Comb foundation. Note these prices on 20-lb. lots: Medium brood, 46c; thin section, 53c. Can also furnish wired foundation. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

FOR SALE — Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

ELECTRICALLY-HEATED beekeepers' uncapping knife, standard 10-inch. Satisfaction guaranteed. Price, $10.00. When ordering, state your voltage, 110-volt or 120-volt. Only maker in U. S. A. Paul Krebs, 8000 Fulton Ave., Detroit, Mich.

BEES AND QUEENS FOR SALE

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease, or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or, it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

LOOK for Latham's queen advertisement in the April number.

WRITE for prices on package bees and queens. Jasper Knight, Hayneville, Ala.

SEND queens anywhere, anytime. Tested Italian queens, 75c each. D. W. Howell, Shellman, Georgia.

GOLDEN Italian queens and bees for 1933—ones that are guaranteed to please you. Write for prices. E. F. Day, Honoraville, Ala.

GENUINE Caucasian bees and queens for spring delivery; prices on request. Pure mating, safe arrival and satisfaction. Lewis & Tillery Bee Co., Rt. 6, Greenville, Ala.

QUEENS—Very best Italians, 50c. Package bees at competitive prices. Trade for white honey. Homer W. Richard, 1411 Champnolle, El Dorado, Ark.

CAUCASIAN BEES for 1933. None too soon to begin figuring on your needs for this year. Send for our booklet on bees. It describes our

Caucasians and quotes new low prices. Bolling Bee Co., Bolling, Ala.

FOR SALE—300 stands of bees, state inspected. Address Kuster, Wheatland, Wyoming.

CALIFORNIA package bees, superior Italian queens; largest, also most northern, breeder in the West. Less express charges. New low prices. J. E. Wing, Cottonwood, Califorina.

A WINNING COMBINATION—2½ pounds Hollopeter's Hustling Italians with queen, express, $2.50; prepaid mail third zone inclusive, $2.75. May delivery. Untested queen, 60c; six, $3.00. J. B. Hollopeter, Rockton, Pa. White Pine Bee Farms.

$2.30, 3 lbs. bees with queen; 1-25 3-lb. pkgs., with select queen, $2.40 each; 25 or more packages, $2.30 each. Each package contains a standard Hoffman frame of brood and honey, natural feed in transit, easy to transfer in hive on arrival. Queens are introduced in before leaving. A 5-lb. package on two frames with tested queen, $3.50. Fine for orchard grower. Guarantee government health certificate, live delivery, 10% oversize, and satisfaction. Send 20% to book order, balance shipping time, April 1. We are the oldest shipper in Louisiana. We do the work ourselves. Liberty Apiary, C. A. Mayeux, Prop., Hamburg, Louisiana.

HELP WANTED

WANTED—Industrious young man, good character and habits, to work with bees and on farm. State wages and give references in first letter. N. L. Stevens & Son, Venice Center, N. Y.

WANTED—Experienced helper for the 1933 season. Board and room furnished. Season starts March 1. State qualifications in first letter. Clover Blossom Honey Co., Inc., Sta. F., Columbus, Ohio.

WANTED—Clean, industrious young man for the coming bee season. Must have some experience. Room and board furnished. Give full particulars first letter. B. B. Coggshall, Groton, N. Y.

WANTED—Reliable young man of good health and habits for coming bee season. Board and lodging provided. Give full particulars and wages expected. Archie L. Coggshall, R. R. 4, Ithaca, N. Y.

SITUATIONS WANTED

YOUNG man with 25 colonies wants job in large apiary in good locality. J. Clark, Murphysboro, Ill.

WORK wanted in apiary. Some experience; reasonable wages. References. M. F. Brown, 48 East 92nd St., New York.

YOUNG man (does not smoke, drink nor chew) experienced with small apiary, wants job as helper for coming season. John Schofield, Paxton, Illinois.

INDUSTRIOUS and reliable young man wants employment in commercial honey production business; any location. Alton Theodore, 178 Queen St., Charleston, S. C.

NURSERY STOCK

BEEKEEPERS—Improve sources of nectar by planting vitex trees, or seed. Two-year-old trees, 40c; one-year-old trees, 25c. New tested seed at $1.00 per ounce. All prepaid. Joe Stallsmith, Galena, Kansas.

GUARANTEED STRAWBERRY plants now $2.50 per thousand and up. Finest quality, sturdy, healthy, guaranteed northern-grown stock. All varieties, including original Mastodon. Raspberries, $7.85 per thousand. Blackberries, $8.95 per 100. Fruit trees and ornamentals at low wholesale prices. Introductory offer: Send 10c for 6 Bellmore—the great new early bearing strawberry developed by United States Department of Agriculture. Big 1933 catalog free. Send today. F. C. Stahelin & Son, Box 110, Bridgman, Michigan.

WANTED—TO BUY BEES

WANTED—Commercial honey outfit or part interest. Box 42, Donna, Texas.

WANTED—Bees and equipment, Minnesota or Dakotas. Must be bargain. Box 105, Dwight, North Dakota.

WILL buy several hundred colonies bees if priced right. Distance immaterial. Edward Klein, Gurnee, Ill.

WANTED—To buy 100 colonies of bees in Michigan, extracted preferred. Lee Van Allen, Grand Blanc, Michigan.

MISCELLANEOUS

WANTED—A large-sized second-hand extracting outfit. H. G. Quirin, Bellevue, Ohio.

WANTED—Copy A B C of Potato Culture, by T. B. Terry. Box 25, Gleanings in Bee Culture, Medina, Ohio.

ANNUAL report American Honey Producers' League, including 14 papers and complete discussion of 1932 convention for $1.00, membership included. Address V. G. Milum, Vivarium Building, Champaign, Illinois.

FOOD DEPARTMENT

(Continued from page 115.)

One young lady told me the following story last week: "For three years another girl and I have made honey fruit cakes for our families. They were so well liked last year that we made extra ones this year to give as Christmas gifts. Every one is so enthused about these fruit cakes that we wouldn't think of making them any other way." The young lady who told me that story was Miss Madeline Bohlsen, Home Service Director, Nebraska Power Company at Omaha, Nebraska. I had occasion to visit her model kitchen at Omaha last week and was delighted with the interest she is taking in honey.

An Extension Economist in Food Conservation, Tallahassee, Florida, Miss Isabelle S. Thursby, writes: "We had so many people at our honey demonstrations during Farmer's Week that we were 'cleaned' out of everything. I wanted to send you a sample of honey nut-citron cake which was delightful both as to texture and flavor. Our homemakers are using more honey than ever before."

And from a homemaker in Indiana,

(Continued on page 124.)

YORK'S

Package Bees and Queens

Each season we strive to produce the highest quality Italian bees and queens. Our bees are hustlers, easy to handle, and get the honey. We offer quality, service, satisfaction and volume production which enables you to secure high quality at low cost.

Good bees have an economic value which is more important now than ever, due to the depressed conditions and necessity to hold or increase production with less expense. It is not unusual for our customers to report 450 lbs. honey, or better, from a 2-lb. package. Give our bees and service a trial and be convinced. Safe arrival and satisfaction guaranteed. Our prices will please you. Special discount on early orders.

York Bee Company, Jesup, Georgia

The Universal Apiaries

1933 ROY'S SPECIAL

PACKAGE BEES AND QUEENS

Write me what you need.

I have a **SPECIAL PRICE** for you with a **GUARANTEE.**

Address

WILLIE ROY, HESSMER, LA.

PRINTING OF ALL DESCRIPTION NEATLY AND PROMPTLY EXECUTED. SEND US YOUR ORDER. THE A. I. ROOT CO., MEDINA, OHIO

FOOD DEPARTMENT

(Continued from page 123.)

Mrs. Lewis Schafer, Coal City, who is volunteering home economic extension, comes: "As a home economic extension worker and homemaker, I am writing for a new supply of honey recipes and folders. I have a class of sixteen homemakers, and have many requests for information and recipes on the use of honey. After demonstrating the use of honey, I find our women much more interested. Many of them are using it in their homes every day in new ways and like it very much."

Honey is fast finding its way into many homes—beekeepers' homes, rural homes, and city homes. Honey is an excellent carbohydrate to modify infant substitute feeding and is just as good a carbohydrate for the daily menu of the older child, woman or man. Use it in your home first; then it will be easier to interest your friends to use it in their homes.

For beekeepers who have several cows and need not worry about the cost of cream, the following desert is suggested:

(Continued on page 125.)

Get Running's Bees

And Get Honey—They Satisfy

PACKAGES and NUCLEI

The kind WE use in our extensive Michigan Apiaries, where WE produce honey by the carload.

ALL ITALIAN STOCK

Service guaranteed. Stock bred for honey-getting and gentleness. PRICES RIGHT. Let us name you prices on any quantity.

Apiary accredited and certified by Alabama Department of Agriculture.

For Quick Service,

David Running, Filion, Michigan

NOTICE!

You are preparing to buy bees and queens. They are cheaper this year than ever. We do not know who is responsible for the low market. We do know that you have a right to demand just as much for your investment as when they were highest on record. For this reason demand the same quality as in the past.

Through years of selection for high production and gentleness in handling we can offer you what you want and need.

Our queens are produced on standard frames and on natural honey flow, assuring you of a strong vigorous queen to head your colony.

PUREST OF ITALIAN STOCK

We guarantee you against the annoyance of delayed shipments. We believe we can please you in service and prices. Write us for particulars.

Louisiana Southern Bee Farm, Rt. 2, Baton Rouge, La.

and Sheldon, Iowa

FOOD DEPARTMENT

(Continued from page 124.)

Date Ice Box Cake—½ pound graham crackers, 1 cup dates, 1 tablespoon lemon juice, 4 tablespoons honey, ¼ teaspoon salt, ½ cup nut meats coarsely chopped (use the hickory nuts many of you have in basement), 1 cup heavy cream whipped. Crush graham crackers with rolling pin. Cut dates very fine and pour lemon juice and honey over them. Let them stand for at least 15 minutes. Add the salt. Fold dates, nuts and cracker crumbs into whipped cream, reserving about 2 tablespoons of crush crumbs. Sprinkle the unused crumbs on a sheet off heavy waxed paper. Turn the mixture onto it, shape into a long roll. Cover with the paper and place in the refrigerator or cool place over night to chill. Serve in slices. Will yield 10 to 14 slices, depending on thickness of same. Honey flavored graham crackers can now be obtained in many sections and we prefer to use them if available.

One of our Minnesota friends worked

(Continued on page 127.)

Package Bees and Queens

SUPERIOR ITALIAN STOCK

Finest on the Market.
Let us quote you.

Citronelle Bee Company, Inc.
CITRONELLE, ALABAMA

SMITH'S ACCREDITED Bees and Queens

Our prices are very low. Our Superior quality bees and queens, plus our safe way in delivering them in perfect condition will be a big factor in your success. We have not lost a single package in FIVE years. There must be a reason. WRITE for prices, guarantee and particulars.

N. B. SMITH & CO.
CALHOUN ALABAMA

QUEENS and PACKAGE BEES

We can supply good early reared Italian laying queens and package bees from the South, beginning April 15. By June 10 we can furnish Root Northern-bred queens from our Basswood Apiary; also daughters of imported queens from northern Italy. Write for prices, also our new free booklet, "How to Build Up an Apiary with Combless Package Bees."

The A. I. Root Co., Medina, Ohio

Bees and Queens Galore

We are situated on main line of railway that connects with all the main lines of the North and West, insuring your bees to reach you on time, and in nice shape.

We do not have a single dissatisfied customer that we know of.

Will have several thousand pounds of three-banded Italian bees. Also several thousand queens for April and May delivery.

Plenty of efficient help to get them to you on time.

2-lb. pkg. with queen.....$1.60
3-lb. pkg. with queen..... 2.00
Queens ..... .50

SHAW & HOMAN
SHANNON MISSISSIPPI

Gaspard's

High Quality Golden and Three-Banded Italian Queens and Package Bees for the season of 1933 at the following prices:

NUCLEUS PACKAGES

Shipped on one standard Hoffman frame of brood and honey, and one young queen in each package.

2-lb. pkg., 1 to 4, $2.25; 5 or more, $2.00 each.
3-lb. pkg., 1 to 4, $2.75; 5 or more, $2.50 each.
4-lb. pkg., 1 to 4, $3.25; 5 or more, $3.00 each.
2-fr. nucleus, 1 to 4, $2.25; 5 or more, $2.00 ea.
3-fr. nucleus, 1 to 4, $2.75; 5 or more, $2.50 ea.

SPECIAL ORCHARD PACKAGE

A 2-frame nucleus with 5 additional pounds of bees and a young queen introduced, for $3.75 each, any number.

COMBLESS PACKAGES WITH QUEENS

2-lb. pkg., 1 to 4, $2.25; 5 or more, $2.00 each.
3-lb. pkg., 1 to 4, $2.75; 5 or more, $2.50 each.
4-lb. pkg., 1 to 4, $3.25; 5 or more, $3.00 each.
Packages without queens, 50c cheaper.
Young queens, 1, 75c; 5, 70c; 10 or more, 60c.

Prompt and efficient service, safe arrival guarantee, and a health certificate with each shipment. Shipping season starts April 1. Orders booked with 10 per cent down, balance at shipping time. Prices are F. O. B. shipping point.

Address—

J. L. GASPARD, HESSMER, LA.

Honey and Pabst-ett Prove 1932 Winners

Miss Annette Snapper of Pabst Corporation, one of honey's most loyal boosters, uses honey in many ways.

Institute Exhibit at Indiana State Fair.

Perhaps no one co-operator has boosted honey in as many ways as the Pabst Corporation. In connection with Pabst-ett spread delicious honey combinations have been suggested to thousands. Grocers throughout the country have been induced to make counter displays featuring honey along with Pabst products. Chefs in large hotels and institutions have received this information. By Institute help honey has been supplied for actual sampling with Pabst-ett and in turn Pabst has supplied his products for similar displays put on by Institute workers. At one exhibit over 5000 recipes were given grocers and the public, featuring honey and Pabst products. Such wonderful boosts for honey without cost could only be assured through an ethical contact such as the Institute. Be sure to write Miss Snapper, care Pabst, Milwaukee, for her honey and cheese recipes. It will help the Institute if you express your appreciation of their wonderful help for honey.

Is this help worth your co-operation? Many honey producers do appreciate it and have shown evidence by sending cash to the Institute to help carry on this wonderful work for honey. For those who cannot send money, send honey to the Institute honey receiver nearest you. The honey will be sold and the money sent to the Institute. Honey receivers are named in this issue.

AMERICAN HONEY INSTITUTE

417 North Few Street, Madison, Wisconsin

FOOD DEPARTMENT

(Continued from page 125.)

out a honey prune cake, which is unusually good. I give you the recipe as Mrs. Kathryn B. Niles, Home Economics Department, University of Minnesota, sent it to me:

½ cup shortening, 2¼ cups pastry flour, 1¼ cup prunes (stoned), ½ cup sugar, 1 teaspoon soda, ½ cup honey, 1 teaspoon cinnamon, 1 egg, ½ cup sour milk. Cream the shortening, sugar and honey thoroughly. Add sifted dry ingredients alternately with sour milk. Beat thoroughly after each addition of dry ingredients. Add chopped prunes. Put batter into two layer cake tins. Bake in a very moderate oven (325° F.) for one to one and one-fourth hours. Prunes may be soaked or cooked but are more satisfactory if not too sofft.

Rich Tea Biscuits—Next time you are making baking powder biscuits or even yeast biscuits, make a dent in top of each one (dent should be diameter of nickel and about ¼ inch deep.) Put in this dent a bit of granulated honey and grate over this orange rind. Bake as usual. If your biscuits are small and not too high, you will be delighted with the glazed top as well as the flavor blend of the grated orange rind and honey.

PACKAGE BEES

For April and First Week in May.

3-lb. bees with queen.....$2.25
4-lb. bees with queen..... 2.70
Combless or with stores on combs if preferred.

STANDARD NUCLEI

3-frame with queen $2.25
4-frame with queen 2.70

SPECIAL PACKAGE

2-lb. bees with 2 frames brood and adhering bees with queen $2.60
3-lb. bees with 2 frames brood and adhering bees with queen 3.00

QUEENS

Select Untested Queen 45c

State apiary certificate with each shipment, prompt shipment, safe arrival, quality guaranteed.

CLOVERLAND APIARIES
HAMBURG, LOUISIANA

Package Bees and Young Laying Queens for 1933

THREE-BANDED ITALIANS. OUR CIRCULAR DESCRIBING THIS STOCK, "HOW TO BUILD UP PACKAGES FAST," AND BARGAIN PRICES ON 4-LB., 3-LB., 2-LB. PACKAGES. ASK FOR CIRCULAR.

Gooch Apiaries, Farmersville, Texas

Package Bees

Are you satisfied with small returns from your package bees? What about those queens that supersede? Ours our guaranteed against supersedure. One customer got 450-pound average, another got 276 pounds, another 200 pounds, and another got 13,000 pounds from 47 packages.

Better get our price list and compare our packages with some of those you have been using.

THE CROWVILLE APIARIES, ROUTE 1, WINNSBORO, LA

Bright Italian Package Bees and Queens

"Diamond Queens"

Our "Bee Business" is one of the finest and probably the largest in Louisiana.
Compare our bees and business methods with anybody's . . . we satisfy.
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Good News for 1933

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